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ARTICLES Page

Effects of Changes in Comparative Costs as influenced by Technical Change .. .. Harry G. Johnson 1

The Long Term Trends in World Economic Growth .. .. Phyllis Deane 14

A Welfare State or a Socialist State? A review article on *Has Capitalism Changed* .. .. Harry T. Oshima 27

The Malayan Rubber Replanting Taxes .. .. Lim Chong Yah 43

The Mechanisation of Agricultural Smallholdings in Underdeveloped Areas .. .. E. K. Fisk 53

Government Ownership of Industry in Asia .. Dan Usher 61

BOOK REVIEWS (*see inside cover*) 68

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BOOK REVIEWS

		Page
E. Stuart Kirby (editor), *Contemporary China: Economic and Social Studies, Documents, Chronology, Bibliography*	Wang Gungwu	68
Manilal B. Nanawati and J. J. Anjaria, *The Indian Rural Problem*	M. C. Agarwal	70
Nicholas Kaldor, *Suggestions for a Comprehensive Reform of Direct Taxation*	Daniel McDonald	71

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EFFECTS OF CHANGES IN COMPARATIVE COSTS AS INFLUENCED BY TECHNICAL CHANGE*

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I. INTRODUCTION

Interest in the effects of technical change on comparative cost, the volume and terms of trade, and the gains from international specialization is of relatively modern origin, a by-product of postwar concern with the "dollar shortage" and the alleged long-run adverse trend of the terms of trade of the primary-producing or underdeveloped countries. More fundamentally, it reflects a growing awareness of the importance of technology among the causes of the wealth of nations, and of technical change among the causes of economic progress and economic change.

Technical change raises a variety of problems in the theory of international trade, according to the context in which it is considered. Thus there is the problem of the costs of adjustment to the new pattern of comparative cost conditions created by technical change, and the distribution of the adjustment costs between the country in which the change occurs and its trading partners; the problem of the effects of technical change on domestic employment levels and international monetary equilibrium under Keynesian conditions; the problem of the effects of technical change on the volume and terms of trade and the economic welfare of trading countries under long-run classical full employment conditions; and the problem of the effects of continuing technical change on the pattern of trade and the extent and distribution of the gains from international specialization.

In what follows I shall be concerned mainly with the last two problems, on the assumption that the costs of making adjustments to technical change are of less interest than the nature of the adjustments themselves, and that the monetary disturbances that may result from technical changes call for the specification of appropriate monetary policies rather than analysis for their own sake. I shall, however, revert briefly to these problems later in the argument. The first section of the paper attempts a restatement and extension of the modern pure theory of the effects of technical change on trade. The second section goes on to a more general discussion of trade and technical change, and is concerned with the question of how technical change may be expected to affect international trade in a developing world.

II. THE FORMAL THEORY OF THE EFFECTS OF TECHNICAL CHANGE ON TRADE

Classical analysis of the effects of technical change on trade begins and very nearly ends with J. S. Mill's analysis[1] of the effects of improvements in

* A paper prepared for the Conference on Trade in a Developing World of the International Economic Association, Brissago, Switzerland, September 1961. This paper is the copyright of the International Economic Association.

1. J. S. Mill, *Principles of Political Economy*, Book III, Chapter XVIII, sec. 5.

the methods of production, according to which an improvement that results in the creation of a new branch of exports leads to a favourable movement of the improving country's terms of trade, foreign countries benefitting from the new product but losing through an increase in the prices of their other imports, while an improvement that lowers the cost of production of an existing export will give the foreign country less or more (and the improving country more or less) than the benefit of the cost reduction, depending on whether the foreign elasticity of demand for the improved product is greater or less than unity. From the latter part of this analysis, Edgeworth drew the obvious implication that under certain conditions "the exporting country is damnified by the improvement; and by parity of reasoning may be benefitted by a restriction of its exports."[2]

The concentration of Mill and other classical writers on improvements in exporting industries gives the impression that technical change in one country always tends to broaden the range of comparative cost differences and benefit the rest of the world, possibly to the detriment of the country in which change occurs.[3] Modern theory, which stems from J. R. Hicks' *Inaugural Lecture*, has tended to place the emphasis on the opposite possibility.[4] Hicks used a Ricardian-type constant-cost model in which each country produced exports and import-substitutes to argue that a general increase in productivity must, except in freak cases, turn the terms of trade against the country in which productivity increased; he then distinguished between productivity increases in the exporting industry ('export-biased' productivity change) and productivity increases in the import-competing industry ('import-biased' productivity change) and argued that export biased productivity change must *a fortiori* turn the terms of trade in favour of the rest of the world, but that *per contra* import-biased productivity change must turn them against the rest of the world, damaging the latter's gains from trade and reducing its welfare. In this last possibility he found the explanation of the dollar shortage, suggesting that it was the result of the import-biased character of American technical progress.[5]

2. F. Y. Edgeworth, "The Theory of International Values", *Economic Journal*, IV, No. 13, March 1894, p. 40. Mill, and Edgeworth following him, was aware that if the country consumed part of the improved export it would still gain even if the foreign demand for it were of unit elasticity. Edgeworth criticized Mill for obscuring the subject by considering the effect of the improvement on the rate of exchange between exports and imports instead of on producers' and consumers' surplus. This was perhaps unfair, since Mill was concerned with how the benefit of the cost reduction was divided between domestic and foreign consumers, not with its effects on the welfare of the improving country. As Murray C. Kemp ("Technological Change, The Terms of Trade, and Welfare", *Economic Journal*, LXV, No. 259, September 1955) has shown rigorously, Mill's unit elasticity criterion is defective since it neglects the cross-effect on the improving country's demand for imports; Mill did in fact recognize the income part of this effect as a possible complication, but overlooked the substitution effect.

3. Mill's first case, of an improvement opening a new branch of exports, will improve foreign welfare unless cross-effects on the domestic demand for imports reduce that demand by a certain critical amount. The case is analogous to that of an improvement in a domestic substitute for imports analysed by Hicks, Asimakopulos and Kemp and referred to below.

4. This point has been made very succinctly in Richard Caves, *Trade and Economic Structure* (Cambridge, Mass: Harvard University Press, 1960), pp. 153-4.

5. J. R. Hicks, "An Inaugural Lecture: The Long-Run Dollar Problem," *Oxford Economic Papers*, N.S., V, No. 2, June 1953, reprinted in *idem*, *Essays in World Economics* (Oxford: Oxford University Press, 1959).

The empirical evidence fails to support Hicks' contention about the nature of American productivity increases, and the dollar shortage has dramatically ceased to be a problem; but his model has stimulated further theoretical research on the effects of technical change. One line of this research has concentrated on Hicks' four-good model, and shown that Hicks' conclusion about the effect of an import-biased improvement may be invalidated by the income-effect of the improvement on the demand for imports;[6] though this model is perhaps more realistic than that used in the other line of research, the results are less interesting since the authors in question start from a reduction in (constant) cost assumed to be brought about by a technical change without investigating the nature of that change.[7] The other, and to my mind more interesting, line of research has concentrated on applying the simplified Heckscher-Ohlin model to Hicks' problem, and has gradually succeeded in working back into the theory the classification of inventions into neutral, capital-saving, and labour-saving developed in the 1930's.[8]

The broad outlines of the logic of the theory can be summarized as follows (to avoid burdening the argument with mathematical and geometrical analysis, the exposition is confined to the logic and the key variables). A technical change in one country will tend to benefit or harm the rest of the world according as it increases or decreases the progressing country's demand for imports at the initial terms of trade, so requiring an adverse or favourable shift of its terms of trade to restore equilibrium. The direction and extent of the required shift in the terms of trade is determined by the direction and magnitude of the change in the progressing country's demand for imports and the elasticities of the reciprocal demand curves, and the gain or loss of welfare to the rest of the world is roughly measured by the change in the cost of its initial volume of imports. If the restoration of equilibrium requires an adverse movement of the progressing country's terms of trade, this is an offset to the increased productive capacity resulting from the technical change, which may in the extreme more than wipe out the gain in productive capacity from the technical change. A rough approximation to the condition for the extreme case is that the reduction in the value of the progressing country's initial quantity of exports exceed the increase in the value of its output (at the initial terms of trade) due to the technical change; and it can be shown that such a loss of welfare as a result of technical change does not require the foreign demand for the country's exports to be inelastic.[9]

The results of the technical change, so far as the rest of the world is concerned, depend on its effects on the progressing country's demand for imports at the initial terms of trade. In the simplified Heckscher-Ohlin model, with

6. Murray C. Kemp, *op. cit.*; A. Asimakopulos, "A Note on Productivity Changes and the Terms of Trade," *Oxford Economic Papers,* N.S., IX, No. 2, June 1957.

7. The literature on this subject is in fact frequently marred by a failure to distinguish between "productivity increase" and technical change; the former, as usually measured, can result from occupational shifts or capital accumulation, which have different effects on prices and distribution than a change in technique of production.

8. E. J. Mishan, "The Long-Run Dollar Problem: A Comment," *Oxford Economic Papers,* N.S., VII, No. 2, June 1955; W. M. Corden, "Economic Expansion and International Trade: A Geometric Approach," *Oxford Economic Papers,* N.S., VIII, No. 2, September, 1956; R. Findlay and H. Grubert, "Factor Intensities, Technological Progress, and the Terms of Trade", *Oxford Economic Papers,* N.S., IX, No. 1, February, 1959.

9. J. Bhagwati, "Immiserizing Growth: A Geometrical Note", *Review of Economic Studies,* XXV (3), No. 68, June 1958.

two commodities produced by a fixed endowment of two factors in different constant-returns production functions under perfectly competitive conditions, this effect is the net outcome of the technical change on domestic demand for and production of the imported goods, and it turns out that, with certain exceptions to be noted shortly, the technical change will increase or decrease import demand according to whether it occurs in the exporting or the import-competing industry, as in the Hicks analysis.

In the simplified Heckscher-Ohlin model just described, the international price-ratio between the two commodities in conjunction with the factor ratio uniquely determines the prices of factors and the factor ratios employed in the two industries (which must be such as to equate the relative production costs of the goods with the international price ratio), and the factor ratios together with the endowment ratio uniquely determine the allocation of the factor endowment and of total output between the two industries. A technical improvement in one industry must reduce the relative cost of production in that industry as compared with the other, at the initial relative factor-price ratio. To restore the equality of the relative cost ratio with the given international commodity price ratio, the relative price of the factor used relatively intensively in the industry whose technique has improved must rise, inducing substitution of the other factor for it in both industries. The technical change and the associated alteration of relative factor prices determine new equilibrium factor ratios for the two industries, which together with the factor endowment determine the new allocation of factors and production between the two industries.

The change in relative factor prices implies that the factor used intensively in the industry whose technique has improved not only gains the whole of the increase in national product resulting from the improvement, but benefits by a redistribution of income from the other factor. Assuming neither good to be inferior, some part of the increase in national product will be spent on each of the commodities; but the redistribution of income will reduce the demand for one of the goods if the marginal propensities to consume of the two factors differ, and this effect may be strong enough to outweigh the other and reduce the demand for one of the goods. Specifically, if factors have a strong marginal preference for the products of the industry in which they are used intensively, the demand for the product of the industry in which improvement occurs may increase by more than the increase in national product due to the improvement.

The effect of the technical change on the allocation of production depends on its effects on the equilibrium factor ratios in the two industries. At this point we define technical change in an industry as neutral, intensive-factor-saving, or intensive-factor-using, according as it would leave unchanged, reduce, or increase the ratio of the factor used intensively in that industry to the other, at the pre-technical-change factor price ratio; and we recall that the increase in the relative price of the factor used intensively in the improving industry required to restore equilibrium after the technical change leads to substitution against that factor in both industries, lowering the optimal ratio of that factor to the other in both industries. It follows that a neutral or intensive-factor-saving technical change must lower the optimal ratio of the factor used intensively in the industry where the change occurs to the other factor in both industries. To reconcile these lower factor ratios with employment of the factor endowment, some of both factors must be shifted to the industry with the higher ratio of this factor — the industry in which the change occurs.

This implies an absolute reduction in the output of the other industry, in which no technical change has occurred, since the factor used intensively in that industry, of which less is now employed there, has a lower average product than before, owing to the reduced ratio in which the other factor is combined with it. In other words, a neutral or intensive-factor-saving technical change increases the output of the industry in which it occurs by more than the total increase in the output of the two industries combined. An intensive-factor-using technical change, on the other hand, while it must still reduce the optimal ratio of the factor used intensively in the improving industry to the other factor in the industry in which change does not occur, owing to the substitution effect of the associated factor price change, may raise that ratio in the industry in which change occurs — and will do so if the intensive-factor-using bias of the change is stronger than the substitution effect of the associated factor price change. If the optimal ratio rises in the industry in which change occurs, while falling in the other industry, the reallocation of factors and production required to keep the total factor endowment employed may involve a decrease or an increase in the output of the unchanged industry, and production in the industry in which change occurs may rise by more or less than the increase in total output, or even fall absolutely, depending on the magnitudes of the relevant parameters (the extent of the cost reduction and the bias of the technical change, and the elasticities of substitution between the factors in the two industries).

It follows from the foregoing analysis that, the international price ratio being given, a technical change in an industry will increase the output of that industry by more than it increases the demand for that output except in two possible cases. The first is where a neutral or intensive-factor-saving technical change occurs, but the resulting reduction in the output of the other industry is more than offset by a reduction in the demand for that output due to the redistribution effect of the factor price change associated with the technical change; this case requires that each factor prefers the product of the industry that uses it intensively, and for convenience can be described as the factor-preference exception. The second is where a technical change is sufficiently intensive-factor-using for the increase in output in the industry where it occurs to be smaller than the increase in demand for the product of that industry resulting from the increase in and redistribution of income due to the change; for convenience, this case can be described as the intensive-factor-using exception.

The application of these results to the problem of the effects of technical change on trade is straightforward. The factor-preference and intensive-factor-using exceptions apart, a technical change in the exporting industry will increase the country's supply of exports (demand for imports) at the initial terms of trade, so tending to turn the terms of trade in favour of the rest of the world; and a technical change in the industry producing importable goods will decrease the country's demand for imports, so tending to turn the terms of trade against the rest of the world. Apart from the exceptional cases, therefore, the direction of the effect of a technical change in one country on its trade with the rest of the world depends on whether the change occurs in the exporting or the import-competing industry. It may be noted in passing that in extreme cases technical change in the exporting industry may lead the country to specialize completely on its export industry, eliminating

the domestic production of importables, and technical change in the industry producing importable goods may lead to a reversal of the direction of international specialization.[10]

The argument set out above can easily be extended to allow for relaxations of the restrictive assumptions of the simple Heckscher-Ohlin model, though such modifications are better handled by explicit mathematical analysis. Increasing or decreasing returns to scale respectively accentuate or mitigate the changes in relative factor prices and production pattern resulting from technical change. Allowing for a third factor of production complicates the classification of technical change, and normally operates to reduce the extent of the required production shifts. An interesting extension is the introduction of a third commodity assumed not to be traded — a version of the Hicks model. A technical change in the method of producing this good will lower its relative price, given the international price ratio, with income and substitution effects on the demand for importable goods. Depending on whether demand for it is elastic or inelastic, the expansion of output required to supply the increased quantity demanded at the lower price will draw factors from or release factors to the exporting and import-competing industries. The production changes in these industries will be determined by the factor intensities in the three industries, it being possible for their outputs to be required to change in opposite directions to employ the economy's factor endowment.[11] Thus a technical change in a domestic goods industry may either increase or decrease the quantity of imports demanded, depending on the net result of its effects on demand for and domestic supply of importable goods. This analysis can be readily reinterpreted to show the possible effects of the introduction of a new commodity, and extended to include Mill's case of an improvement that opens up a new branch of exports by adding a similar analysis of the effects of the availability of a new export on the foreign supply of imports. In Mill's case, however, the effects on foreign welfare cannot be identified with the movement of the terms of trade.

A more interesting extension of the Heckscher-Ohlin model, and one more relevant to the problems of trade in a developing world, is to relax the assumption of fixed factor supplies. Factor supplies may be variable either because factors are internationally mobile, or because a country's stock of factors is responsive to factor earnings, as will be the case with capital and may be the case with labour. As shown above, technical change raises the real price of the factor used intensively in the industry where the change occurs, and lowers the real price of the other factor, at the initial international price ratio. If factor supplies are perfectly elastic at the initial real prices, the new international equilibrium after the technical change must entail a reduction in the relative price of the commodity produced by the industry in which the change has occurred, by the amount of the cost saving due to the

10. Where technical change in an industry results in complete specialization on it, it is possible that the relative price of the factor used intensively in that industry will fall rather than rise. This will happen if the technical change has an intensive-factor-saving bias so strong that the optimal ratio of the intensively-used factor to the other at the initial relative factor price ratio is less than the endowment ratio. This possibility is ignored in the subsequent argument.

11. It can readily be shown that the outputs of the exporting and import-competing industries must change in opposite directions if the domestic goods industry uses its intensive factor more intensively than the other two industries and the technical change is neutral.

technical change. Abstracting from the complications that international factor mobility introduces into the concept of national economic welfare, this implies that the rest of the world must gain or lose according as the change occurs in the exporting or import-competing industry.

Perfect elasticity of factor supplies, national or international, is not a very interesting assumption — if it were, international trade theory would not be an interesting subject. A more interesting assumption, and one in line with the tradition of the subject, is that factors are internationally immobile but that national factor supplies may be responsive to price. Two extreme cases seem especially relevant to the problem of the influence of technical change on international trade in a developing world: perfect elasticity of domestic supply of capital at a given interest rate, and perfect elasticity of supply of labour at a given real wage. These may be taken as typifying the long-run characteristics of advanced and underdeveloped countries, as these have been treated in recent literature.[12]

Before considering these cases, it is advisable to notice that the Heckscher-Ohlin model, as generally used in international trade theory and as employed in the foregoing argument, is fundamentally incapable of dealing with the role of capital in production, and can only be used for this purpose on the basis of assumptions of a not obviously acceptable kind. The reason is that it treats factors as physically homogeneous permanent stocks, and the factor prices it determines are rental rates on units of these stocks. To apply it to capital, one must assume capital equipment to consist of physically quantifiable homogeneous units that can be continuously combined with labour in production processes, and to translate the rental rate on these units into a rate of interest requires assumptions about both the productive life of the units and the process by which they are produced.[13] To take account of the crux of the problem, the physical diversity of capital equipment in different industries requires an elaborate mathematical analysis. These complexities cannot be treated here; instead, we simplify the problem by confining attention to the changes that would occur with a given international price ratio — which makes it unnecessary to specify how capital is produced — and assuming that the rate of interest is uniquely related to the price of (the services of) capital.

On this assumption, it follows readily that if either capital is in perfectly elastic supply at a fixed rate of interest, or labour is in perfectly elastic supply at a given real wage rate, a technical change in one of the industries must lead the country to specialize completely in that industry (at the initial terms of trade). In the former case the real wage rate, and in the latter case the rate of profit, must rise, since the ratio of the factor in elastic supply to the other must rise to offset the effect of the change in raising the former's marginal productivity. It can also be shown that these latter effects cannot be offset

12. See, on the one hand, the literature on dynamic economics stimulated by R. F. Harrod's *Towards a Dynamic Economics* (London: Macmillan, 1948), on the other the literature on economic development typified by W. A. Lewis, "Economic Development with Unlimited Supplies of Labour," *The Manchester School*, XXII, No. 2, May 1954.

13. An exhaustive treatment of capital accumulation and technical change in a closed economy along these lines, which illustrates the restrictive assumptions necessary to make the problem manageable, may be found in James E. Meade, *A Model of Economic Growth* (London: Allen & Unwin, 1960).

by the fall in the price of the commodity in which the country specializes resulting from the technical change.

III. TECHNICAL CHANGE IN A DEVELOPING WORLD

The formal theory of the effects of technical change on trade indicates the effects that technical changes may have, and the nature of the parameters on which the effect of a particular type of change depends, but does not by itself throw any light on the likely actual effects of technical change in a developing world on the magnitude and distribution of the gains from trade and the volume of international trade. As has already been mentioned, Hicks (and others before and after him) attempted to explain the dollar shortage by reference to the alleged import-biased characteristics of progress in the United States; but there has been little satisfactory attempt to explain why technical progress there should have these characteristics. Similarly, Prébisch and Singer[14] have supported their contention that the long-run trend of the terms of trade between advanced industrial and primary-producing countries is adverse to the latter by the assumption that increases in productivity in manufacturing are taken out in higher wages while in primary production they are taken out in lower prices, without explaining satisfactorily how this comes about or examining its consistency with trade equilibrium.

To approach this question properly, it is necessary to look into the forces making for technical change, to see what sorts of technical change are likely to occur. Unfortunately no convincing simple theory of technical change suggests itself, so that this section will consist mainly of an exploration of various mechanisms causing or inducing technical change and their probable or possible consequences.

Before approaching the main question, some preliminary observations are worth making. First, regardless of whether technical change is export-biased or import-biased, in the sense of its effect on international trade equilibrium, it will give rise to a transitional international monetary disequilibrium if the adjustments of money incomes and prices that accompany it are inappropriate. Such monetary disequilibria, however, do not necessarily correspond to the underlying real disequilibrium; an export-biased change, for example, can lead to either a balance-of-payments surplus or a deficit for the country concerned, depending on whether money incomes rise too little or too much. Second, any technical change disturbing international equilibrium impose short-run costs of adjusting resource utilization and trade patterns to the new pattern of beneficial international specialization; countries differ in their capacity to make these adjustments readily, with the result that changes from which a country would benefit in the long run may be extremely harmful to it in the short run, if the immediate response takes the form of lower incomes and unemployment. In this respect, as Kindleberger has argued[15], undeveloped countries may suffer unduly from technical progress owing to the lack of adaptability of their

14. H. W. Singer, "The Distribution of Gains Between Investing and Borrowing Countries", *American Economic Review*, XL, No. 2, May 1950; United Nations (Raul Prebisch), *The Economic Development of Latin America and its Principal Problems* (United Nations, 1950).

15. C. P. Kindleberger, *The Terms of Trade: A European Case Study* (Cambridge, Mass.: Harvard University Press, 1956), and "The Terms of Trade and Economic Development", *Review of Economics and Statistics*, XL, No. 1, Part 2, Supplement, February 1958; see also Thomas Balogh, "The Dollar Crisis Revisited" *Oxford Economic Papers*, VI, No. 3, September 1954.

resources. Thirdly, a point which becomes important in considering technological progress in a growing world, the influence of technical change on trade is not confined to its direct effects on comparative cost ratios; instead, technical change may affect trade directly through its general contribution to the growth of one country or region, and changes in comparative costs may follow as an indirect response to the price changes that such sectional growth brings about. Fourth, the influence of technical change in a context of growth depends on the response to it of the other variables that determine growth — broadly speaking, capital accumulation and population growth. An important illustration of the differential impact of the context in which change occurs may be the growing inequality between the advanced and underdeveloped nations, for which various economists (including Singer and Prébisch) have offered explanations based on assumed differences in the nature of technical change in the two types of countries, but which may be better explained in terms of the formal theory presented earlier by the assumption that advanced nations respond to technical change by accumulating capital, incidentally raising real wages, while underdeveloped nations respond by increasing the supply of labour.[16]

In what follows I shall ignore problems of monetary disequilibrium and short-run adjustment, and also confine the argument so far as possible to technical changes that operate differentially on comparative cost conditions. The main part of the argument will be concerned with factors influencing technical change and the likely direction of their effects on trade on the assumption that technical changes are confined to the country in which they occur; but I shall conclude with some remarks on the forces making for diffusion of technical change, and the likely effects of such diffusion on international trade.

Our main concern is with the question of whether technical change is likely to promote or inhibit international trade. At the outset, it must be observed that there are two crucial areas of economic activity in which technical change is likely to promote international trade, namely transport and communications. It is one of the basic propositions of international trade theory that were it not for transport costs (and commercial policy) every commodity a country consumes would enter international trade as either an import or an export. Reductions in the cost of international transport must therefore tend to increase the range and value of commodities entering international trade; similarly, improvements in international communications must have a trade-increasing effect. Nevertheless, even improvements in methods of transport and communication can have a trade-inhibiting effect by promoting internal trade at the expense of external trade. Further, as noted below, the fact of transport and communication barriers to trade, as distinct from the influence of technical change in them, may exert some pressure for import-biased technical improvements, by giving a form of protection to the profits resulting from such improvements.

Turning to technical change in general, one can look at the process of technical change in either of two ways — either as the consequence of the inquisitive scientific spirit, or as a rational response to economic incentives. In the absence of reliable knowledge as to what motivates inquisitive and inventive minds, the former approach leads to no definite conclusions about

16. See W. Arthur Lewis, *op. cit.*, especially pp. 181-184.

the bias of inventions. "There must be a better way of doing this" would tend to favour technical changes in existing activities, and so tend to be export-biased; "if they can do it there, I don't see why we couldn't do it here" would tend to favour import-biased technical changes. Insofar as these different motivations can be linked to other characteristics of the national economy, however, they can lead to conclusions about the bias of technical change in different circumstances; Hicks in effect argues that developing countries go through a long cycle from export-biased to import-biased improvements because they switch from the first motivation to the second as they acquire international stature, and one could argue that countries leading in economic development will tend toward export-biased (or, if one prefers, import-biased) technical change and countries following in economic development towards import-biased technical change. But such arguments make a suspiciously rapid jump from national to individual psychology. Insofar as technical change is motivated by the pure spirit of scientific inquiry or human curiosity, one would expect technical changes to be random, without overall export- or import-bias. In that case, the effects of technical change in a country on its trade would be determined by its industrial structure in conjunction with its income-elasticities of demand.[17]

The alternative approach is to consider technical change as the result of a rational economic process, a deliberate or unconscious outcome of the play of economic incentives. It is natural, at least in an advanced industrial economy in which production is carried on by large corporate enterprise, to think of advances in technical knowledge as a form of capital that can be created by investment in organized research; even where research is not organized as part of the productive process or conducted and marketed by specialized enterprises, it is likely to be motivated at least in part by considerations of potential profit. The question, then, is whether and in what circumstances profit-motivated research is likely to be biased towards export- or import-biased technical change.

Before going into this question, it would be as well to recognize the importance of technical change resulting from research carried on directly or indirectly by governments. The most important type of such research is defense-connected research, the primary intention of which is import-substituting, though it may result in exports to military allies and have indirect export- or import-biased effects on non-defense industries. Apart from government defense research, the possibility of war probably has some import-biasing influence on technical change, while actual engagement in war almost certainly does. Another type of government research influencing trade is that conducted on behalf of small-scale producers, most usually farmers and other primary producers, though in some instances manufacturers, to improve their methods and therefore their competitive position. Such government assistance gives an export-bias or an import-bias to technical change according to whether the products of the favoured sector are marketed abroad or at home. In the past, such research has typically been conducted on behalf of agriculture and probably tended to be export-biased. But the policy of assisting domestic

17. There is, however, one respect in which random technical change may have an inherent import-bias — through the replacement of natural products by synthetics more amenable to the strict control of characteristics important to the use of such products in advanced production processes; but technological progress also permits stricter control of the characteristics of natural products.

industries afflicted by foreign competition by means of subsidized research rather than tariff protection has been recommended increasingly in recent years, and if it becomes accepted practice will have an import-biasing effect on technical change.

On the assumption that private research leading to technical change is profit-motivated, the effects of technical change on trade will depend on whether the prospects of profit from changes favour import-biased or export-biased change, that is, favour technical change in exporting or import-competing industries. Prospective profit depends on the one hand on the cost of achieving the required advance in technical knowledge, on the other hand on the income that can be captured by applying it. There seems to be no obvious reason to expect the cost of successful research to be biased in favour of research on technical improvements in exportable or importable goods; rather, one might expect the prospective costs of achieving an advance in knowledge to be low or high in a particular industry at various times, depending on whether or not advances in knowledge or technique achieved elsewhere could be readily applied to that industry or not.[18] The returns from successful research are more amenable to analysis. The prospective profits from improving or cheapening a product are likely to be large, the larger and more certain the market for it and the greater the prospects of increasing demand. The size-of-market consideration would imply a tendency for technical change to be export-biased in small economies, and import-biased in large economies; the rate-of-growth consideration would imply a tendency for technical change to be import-biased in relatively rapidly-growing economies, and export-biased in relatively slowly-growing economies. The prospective profits from technical change are also likely to be greater, the more rapidly the prices of inputs are expected to rise; this would also imply a tendency for technical change to be import-biased in a rapidly growing economy and export-biased in a slowly growing economy (assuming that growth by itself tends to turn the terms of trade against the growing country, thus tending to raise the prices of factors used intensively in producing importables[19]). In general, insofar as technical change is guided by prospective trends in demand and cost, it will tend to counter-act these trends, so exercising a restraining influence on trends in the terms of trade and tending to keep the growth of national real income in line with the average rate of technical change.

Two other elements may be noted as tending to foster import-biased technical changes. One is the influence of transport costs and communication difficulties in providing some degree of protection in the domestic market against foreign competition and rendering the domestic market less risky than the foreign, which might provide some incentive to direct research investment towards technical changes in import-competing rather than exporting industries; as mentioned above, the influence of technical change in transport and com-

18. Alternatively, some industries might acquire the tradition of and organization for continued technical progress; if this were the case, these industries would ultimately become exporters, and progress in the economy as a whole export-biased.

19. It might be expected that research in each industry would tend to aim at saving on the use of the factor used intensively in that industry, since this would maximize the ratio of proportional saving in total cost to proportional reduction in quantity of factor used per unit, so that technical change in an industry would tend to be intensive-factor-saving, thus reducing the likelihood of the intensive-factor-using exception to the theoretical conclusion that the bias of technical change corresponds to the industry in which it occurs.

munications in promoting international trade may be much more important. The other element is the business cycle: in the recession phase, general uncertainty and marketing difficulties may bias technical change towards reducing costs in import-competing industries, and these influences may be encouraged by the greater protectionism into which governments tend to be led or forced in order to maintain domestic employment of labour and capital.

Thus far the argument has been concerned with factors influencing the direction of technical change within a country, on the assumption that the advance in knowledge that makes technical change possible is generated in that country. Technical change may and often does also occur as a consequence of the transmission of knowledge from one country to another. According to the analysis of the previous section, such transmission is beneficial or harmful to the world outside the receiving country according as it has an export-biased or import-biased effect there — in general, according as it reduces costs in the exporting or the importing industries[20] — and beneficial to the receiving country unless the export bias turns the terms of trade against it sufficiently to offset the gain from increased productive capacity. Whether beneficial or harmful to the economic welfare of the countries involved, such transmissions may be profitable to the possessor of the knowledge. Indeed, the transmission of technical change to countries at lower stages of development may be profitable where the investment of capital without technical change would not be, since a low level of technology may make both real wages and the rate of profit lower than in advanced countries, giving both labour and capital an incentive to flow towards the advanced countries.[21] In these circumstances, the lower real wages in the countries at lower stages of development provide an incentive to the application of more advanced technology there by native businessmen or entrepreneurs from the advanced countries. The application of superior technology may have either an import-biased effect, as when an advanced-country corporation establishes a branch plant in a foreign market instead of exporting to it, or an export-biased effect, as when such a corporation establishes a foreign subsidiary to supply goods for the home market instead of expanding its domestic facilities. In either case, obviously, the transmission of technical knowledge benefits labour in the receiving country at the expense of labour in the transmitting country, though the benefit to the former may be through increased employment rather than higher real wages.

Consideration of the international transmission of technical change brings us to a final, fundamental problem, the meaning of comparative advantage in a world developing by means of capital accumulation and technical progress. In such a world, the sources of comparative advantage are to be found in the possession of particular natural resources, or in the possession of technology superior to the average corresponding to the economy's real wage level and the prevailing rate of profit, acquired by superior scientific or engineering re-

20. The knowledge-transmitting country will gain, even though the rest of the outside world loses, from transmitting an import-biased technical change if its exports happen to be competitive with those of the receiving country, or if it imports in competition with the receiving country; and *vice versa*. Also, the rest of the world may gain in the long run if the import-biased technical change sets off a process of economic development in the receiving country.

21. Where labour is prevented from moving to the advanced country by restrictive immigration laws, the transmission of technical knowledge can be regarded as a form of compensation for damages.

search, or by exploitation of economies of scale and experience in particular lines of specialization. The gains from trade are the results of taking advantage of comparative cost differences by specialization and international exchange, as in classical analysis. But instead of being firmly grounded in stable and enduring characteristics of national economies — inherent cost differences, as in the Ricardian model, or differences in factor endowments, as in the Heckscher-Ohlin model — comparative advantage is the evolving consequence of the dynamics of technical progress, capital accumulation, and population increase, and their diffusion through the world economy. As the argument of this section has shown, there is no reliable presumption as to whether continuing technical progress will tend over the long run to increase or decrease comparative cost differences and the advantages of international specialization. Various reasons have been suggested, however, for believing that in the long run no country is likely to enjoy increasing gains from trade at the expense of its trading partners, since such gains are likely to be undermined by the development or transmission of countervailing technical change. The possibilities of technological improvement as a substitute for natural advantages also suggest that international trade will become of relatively decreasing importance as a contributor to national real income levels.[22]

22. *Cf.* J. G. Smith, "Economic Nationalism and International Trade", *Economic Journal,* XLV, No. 180, December 1935, pp. 619-48; D. H. Robertson, "The Future of International Trade", *Economic Journal,* XLVIII, No. 189, March 1938, pp. 1-14, reprinted as Chapter 21 in American Economic Association, *Readings in the Theory of International Trade* (Philadelphia: Blakiston Press, 1950).

THE LONG TERM TRENDS IN WORLD ECONOMIC GROWTH

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EARLY GROWTH

Economic growth defined as a sustained secular increase in total national income, or in national income per head of population, is, like population growth, a fairly recent phenomenon in world history. Rapid economic growth — rapid enough to be reflected in perceptible improvements in average standards of living — has so far been confined to a relatively small proportion of the earth's population. It has been associated, wherever it has appeared, with the radical changes in productive techniques and organisation involved in the broad process which is usually described as an "industrial revolution".[1]

The first country to experience the effects of an industrial revolution was Britain and economic historians have traced the origins of the transformation back to the sixteenth and early seventeenth centuries.[2] By 1851 her 'course was set towards the "industry state", but the voyage was not half over.'[3] On this interpretation the first industrial revolution took more than 300 years to complete. The effective transformation, however, that is, the changes which were associated with sustained economic growth, date from the middle of the eighteenth century. Britain was still essentially a "pre-industrial" country throughout most, if not all, of the eighteenth century, and was not fully industrialised until the end of the nineteenth century. Its early eighteenth century rate of growth was so slow that as late as the 1740's pamphleteers were content to argue on the basis of national income estimates made by Petty in the 1670's and to assume no subsequent increase in average incomes. Attempts to measure British economic growth at this stage suggest an annual rate of growth of only about 0.3 per cent in the volume of national output; and since population was virtually stagnant, the rate of growth in real incomes per head was about the same. Two other European peoples were at roughly the same level of living as the English — the Dutch and the French. Writing at the end of the seventeenth century Gregory King put average incomes in Holland at

1. An "industrial revolution" in the sense in which it is used here involves a technological transformation of all types of industry — agriculture, commerce, transport — and not merely of manufacturing industry.

2. J. U. Nef, for example, in "The Progress of Technology and the Growth of Large Scale Industry in Great Britain, 1540 - 1640", *Economic History Review, V,* 1934.

3. J. H. Clapham, *An Economic History of Modern Britain,* Cambridge: Cambridge University Press, 1939, Vol. 2, p. 22. Note that Rostow sets 1850 as the 'rough symbolic date' for British technological maturity. W. W. Rostow, *The Stages of Economic Growth,* Cambridge: Cambridge University Press, 1960, p. 59.

just over £8, in England and Wales at just under £8 and in France at about £6.[4] As far as we know these were the richest countries in Europe — indeed in the whole world. Three quarters of a century later Adam Smith ranked these three countries in the same order at the top of the list;[5] so we may reasonably presume that they were growing at much the same slow rate. The rest of the world was certainly not growing any faster, if indeed it was growing as fast. But it is doubtful whether the world spread in income levels was very wide at this stage.

In particular, the eighteenth century European lead was probably a recent development. In medieval times the accounts brought back by Marco Polo suggested that China was economically in advance of Europe. In the seventeenth and eighteenth centuries French missionaries continued to bring back glowing reports of the superior wealth of China, of its huge cities alive with trade, its high agricultural yields, its extensive system of canals and roads, its high standards of education and its rapidly growing population.[6] As late as 1819 a French scholar described the internal trade of China as being greater than that of all Europe, its labourers as being much better educated and its cities much larger.[7]

Most British accounts of the Chinese Empire grew less admiring as the century wore on. After 1795 when a British embassy went to Peking and brought back a number of reliable first hand accounts, the view that Europe was economically in advance of China became accepted by British writers but it was generally assumed that this was a consequence of the fact of recent European economic growth and Chinese stagnation.[8] This was also the view of Adam Smith, writing on the threshold of the great new economic upsurge in England and looking back with conviction on a slow but nevertheless perceptible recent growth in real incomes and population.[9] "China", he wrote,

4. The original pamphlet is reprinted in *Two Tracts by Gregory King*, edited by George E. Barnett, Baltimore: The Johns Hopkins Press, 1936.

5. Adam Smith, *Wealth of Nations*, 1775, Cannan edition, London: Methuen, 1950, Vol. I, p. 353, "Holland in proportion to the extent of the land and the number of its inhabitants by far the richest country in Europe.....England perhaps the second richest country of Europe....."

6. For example, Louis Le Comte, *Memoirs and observations made in a late journey through the Empire of China*, translated from the Paris edition, London, 1697; J. B. du Halde, *General History of China*, 1738-41.

7. M. l'Abbé Grosier, *De la Chine*, ou Description Générale de Cet Empire, redigée d'après les memoirs de la mission de Pékin, Paris, 1818-19, 6 Volumes; see especially Vol. V, pp. 202-4. Also W. Winterbotham, *An historical, geographical and philosophical view of the Chinese Empire*, London, 1795, for a similar account. For an extended account of the 18th century European view of China, see Lewis Maverick, *China a Model for Europe*, San Antonio, Texas, 1946.

8. See, for example, George Staunton, *An authentic account of an embassy from the King of Great Britain to the Emperor of China*, London, 1797, Vol. II, p. 514, "Before the period of the Mongol invasion of their country, in the midst of the dark ages of Europe, when China was visited by Marco Polo, the natives of it had already reached their highest pitch of civilization in which they were certainly much superior to their conquerors, as well as to their European contemporaries: but not having since advanced, whilst the nations of Europe have been every day improving in manners and in arts and knowledge of every kind, the Chinese are seen by the latter with less admiring eyes than they were by the first travellers who gave accounts of them". See also John Barrow, *Travels in China*, 2nd. edition, 1806, for another account of the embassy.

9. References are to the Cannan edition of *The Wealth of Nations*, London 1950. On the improvement in average incomes in Britain see, for example, Vol. I, p. 200.

"has been long one of the richest, that is, one of the most fertile, best cultivated, most industrious and most populous countries in the World. It seems, however, to have been long stationary".[10] Elsewhere he points out that certain sections of the Chinese people were poorer than "the most beggarly nations in Europe"[11] and that some sections were much richer than their European counterparts.[12] On balance it seems probable that if Adam Smith had been addicted to political arithmetic and had been disposed to make national income comparisons between Europe and China, he would have put *total* national income in the latter well above that of Europe and would have put its average national income lower, but not greatly lower, than the European average.[13]

MODERN ECONOMIC GROWTH

The growth that began to gather momentum in Western Europe in the eighteenth century was totally without precedent. There had been economic growth before, here as elsewhere, but it had been precarious, readily reversible by famine, pestilence, war or simply by population pressure. In this crucial period covering the last quarter of the eighteenth and the first quarter of the nineteenth century, the British industrial revolution took shape and generated an economic expansion which continued to accelerate through an unprecedented rise in population, an unusual succession of bad harvests and a long and expensive war. The English example was imitated by Belgium, France, Germany and by the overseas descendants of Europe in the United States, Australia and Canada. Sustained economic growth was achieved in the course of a generally slow, often socially painful, process of economic change which has been extraordinarily selective in its choice of location.

The widening gap

The result has been an increasing inequality of distribution of world incomes. In 1938, according to Professor Kuznets' calculations, about a quarter of the world's population, that is, Western Europe, its overseas descendants in America and Australasia, and the U.S.S.R., earned nearly two thirds of the world's incomes.[14] By 1949 the income share of this group had risen above three quarters. Similar calculations based on the estimates contained in the 1959 United Nations *Yearbook of National Accounts Statistics* indicate that

10. *Ibid,* Vol. II, p. 73.

11. *Ibid,* Vol. I, p. 73.

12. *Ibid,* Vol. I, p. 205.

13. See for example Vol. I, p. 189, "China is a much richer country than any part of Europe and the difference between the price of subsistence in China and Europe is very great. Rice in China is much cheaper than wheat anywhere in Europe". And Vol. I, p. 206 "..... in countries of equal art and industry, the money price of the greater part of manufactures will be in proportion to the money price of labour: and in manufacturing art and industry, China and Indostan, though inferior, seem to be not much inferior to any part of Europe. The money price of the greater part of manufactures, therefore, will naturally be much lower in those great empires than it is anywhere in Europe".

14. Simon Kuznets, "Quantitative Aspects of the Economic Growth of Nations, I — Levels and Variability of Rates of Growth", *Economic Development and Cultural Change,* Vol. V, October 1956, p. 17.

the international inequality is increasing and that it is appreciably greater than the intranational inequalities.[15] Table I illustrates the intercontinental distribution of world incomes.

TABLE I. DISTRIBUTION OF WORLD POPULATION AND INCOMES, 1938 AND 1961

	1938			1961		
	Percentage distribution		Average income as % of world average	Percentage distribution		Average income as % of world average
	Population	Income		Population	Income	
Overseas descendents of Western Europe	7.1	29.6	419	7.3	41.3	542
Europe	26.4	46.6	177	21.4	38.8	181
South and Central America	6.0	4.2	71	7.0	4.7	69
Asia	53.2	17.3	33	56.9	13.1	23
Africa	7.3	2.3	32	7.4	2.0	22

Sources: (a) 1938 figures from Kuznets, *op. cit.*, p. 17. These in their turn were largely based on estimates in W.S. and E.S. Woytinsky, *World Population and Production,* New York, 1953 p. 395.

(b) 1961 figures from P. N. Rosenstein-Rodan, "International Aid for Underdeveloped Countries", *Review of Economics and Statistics,* May 1961, p. 118.

The widening of the gap between high income and low income nations seems likely to continue for three main reasons: (a) because even a small percentage increase (1 per cent or less) in the average incomes of the former is absolutely high in relation to the world average, (b) because the productivity of unindustrialised countries tends in any case to grow more slowly than the productivity of countries which have passed through an industrial revolution, and (c) because the populations of the undeveloped countries, already in a majority, are currently expanding at a greater rate than the populations of the developed countries.

It is evident then that the various regions of the world are growing at appreciably different rates and from markedly different levels — the differences in levels being wider than the differences in rates of growth. Can we say anything, on the basis of past experience, about the probable sustainable rates of growth in different kinds of region, and, by implication, for the world as a whole?

Pre-industrial rates of growth

Definitive estimates of long term rates of growth demand a basis of national income data; more specifically they require average national incomes expressed at constant prices, over a period long enough to override the effects

15. Suphan Andic and Alan T. Peacock, "The International Distribution of Income, 1949 and 1957", *Journal of the Royal Statistical Society,* Vol. 124, Pt. 2, 1961.

of temporary fluctuations in economic activity (war booms and cyclical disturbances, for example). Unfortunately such historical estimates of national income are available only for the advanced countries, that is, for a notably atypical sample of the world's economic units. For most of the unindustrialised countries the only consistent series available are estimates at annual prices for a few years in the 1950's.

Attempts to fill these vast lacunae in our knowledge of how the world has developed have been few and tentative. There are some isolated patches of uncertain light. Of these the most significant are those shed by the Indian inquiries. Dr. Mukherjee's critical review of Indian estimates of long term growth suggests a fluctuating experience over the past century, amounting in all to a long term rate of advance of under half of one per cent per annum.[16] Within the present century there have been periods of expansion (1900-25 when the annual rate of growth in real incomes per head may have been in the region of 1 per cent), stagnation (1925-40), decline (1940-50), and of renewed growth (1950-60). Probably these are optimistic estimates of the growth achieved — at any rate for the period 1900-25. If we may hazard a guess concerning the other teeming areas of unindustrialised Asia, it seems probable that the Indian experience is near the upper limit of the conceivable rate of progress. Although there may have been small areas and brief periods of growth higher than that achieved in India during the first quarter of the twentieth century, the lot of the majority of the peoples of Asia outside Japan must have varied between stagnation, decline and very slow growth.

In smaller economic units more closely in contact with the growing nations of Western Europe and North America a moderate rate of growth could be achieved by developing an effective trading relationship with the expanding economies. Mrs. Eisner's estimates for Jamaica, for example, suggest an average annual increase in output per head of 0.2 per cent from 1870 to 1890, 0.5 per cent from 1890 to 1910 and 0.7 per cent from 1910 to 1930.[17] The development of an export sector, however, was not always an 'open sesame' to sustained growth. In Egypt, after four or five decades of unsuccessful forced industrialisation, the economy began to grow in the second half of the nineteenth century on the strength of its exports. But it was advancing into a blind alley. The rest of the economy remained passive and when export markets collapsed and terms of trade turned against primary producers in the twentieth century Egyptian incomes lost ground almost as rapidly as they had gained it.[18] The overall rate of growth over the period from the 1880's to the 1950's was probably less than half of one per cent per annum.

16. M. Mukherjee, "A Preliminary Study of the Growth of National Income in India, 1857-1957", Paper presented to the Asian conference of the International Association for Research in Income and Wealth, Hong Kong, 1960; and *idem* "A review of Series Estimates of National Income in India, 1900-1958", Paper presented to the Second Indian Conference on Research in National Income, Delhi, 1960.

17. G. Eisner, *Jamaica 1830-1930*, Manchester: Manchester University Press, 1961.

18. Charles Issawi, "Egypt since 1800: A Study in Lop-sided Development", *Journal of Economic History*, March 1961. See for example, pp. 16-17, "The per capita income which had risen fairly rapidly till the First World War is today certainly lower than it was at that time. The level of living fell in the interwar period and today is not above the 1939 level."

Elsewhere in Africa high rates of growth were achieved by enclaves of European settlement and investment concentrated in areas of great mineral wealth. Within these enclaves the industrial revolution was complete and standards of living and technological advance were high by international standards. Beyond their confines techniques of production and levels of living remained primitive in the extreme. The Belgian Congo, where the rate of growth of gross domestic product is estimated to have averaged as much as 4½ per cent per annum over the period 1920-54 (in relation to a rate of population increase of perhaps only 1 per cent), was one example of this kind of restricted development.[19] The Union of South Africa with its substantial core of European settlers and capital, its migrant labour system and its deteriorating native reserves was another: there national income per head seems to have grown at an average annual rate of about 2.1 per cent over the period 1911-51.[20] For most of the indigenous peoples of Africa, however, it is doubtful whether the twentieth century rate of progress was even as strong as the limping pace of Egyptian growth.

Economic growth in Latin America was similarly dependent on world markets for primary products and in the turbulent international conditions of the twentieth century fluctuated widely from year to year. Countries like Venezuela which possessed resources as valuable as petroleum enjoyed a long term trend in which the upswings counted for more than the downswings; though here, as in South Africa, development was largely confined to the export sector and to the urban enclave which it supported. For Latin America as a whole the ups and downs of the twentieth century, measured against the accelerating population increase, yielded a scarcely perceptible long term growth in product per head up to World War II. During the world wide shortage of raw materials which characterised the war, and more dramatically its aftermath, Latin American product per head surged. Growth rates reached an average of between 2 and 2½ per cent per annum over the period 1935-51.[21] They slackened markedly, however, in the 1950's and over the whole period 1925-59 it is doubtful whether the Latin American rate of growth much exceeded one per cent per annum.

Nor were some of the unindustrialised countries of Europe more fortunate. The experience of Spain, for example, approximated in some ways to the Indian pattern. By the end of the nineteenth century an inadequate railway network had been constructed and a few large steel works were in existence. During the first quarter of the twentieth century there seems to have been an increase in average real national income of the order of one per cent per annum, but this was completely wiped out by the catastrophic civil war of the 1930's, so that in effect the 1949 standard of living apparently showed little if any improvement on the levels prevailing before 1913.[22] In the 1950's, on the other

19. "Quelques considérations sur le développement de l'économie congolaise de 1920 a 1954", *Bulletin de la Banque Centrale du Congo Belge et du Ruanda Urundi*, March 1956.

20. Based on estimates given by Simon Kuznets, *op. cit.*, p. 89.

21. United Nations Department of Economic and Social Affairs, *Analyses and Projections of Economic Development*, Study prepared by the Economic Commission for Latin America, New York, 1955. For later rates of growth, see annual ECLA *Economic Survey of Latin America*, 1955 and later years.

22. See Consejo de Economica Nacional, *La Renta Nacional de Espana*, Vol. I, Madrid, 1945; and *La Renta Nacional de Espana en 1959 y avance de 1960*, Madrid, 1961, for estimates of Spanish national income and constituent aggregates over the period 1906-59.

hand, a sharp improvement developed; in the quinquennium 1956-60, real national income per head is estimated to have been more than 40 per cent above the 1946-50 average.

What it amounts to, then, is that evidence of secularly sustained growth in the nineteenth and twentieth centuries is confined to countries which have already achieved a certain measure of industrialisation, or are peopled by communities which have had an industrial revolution passed on to them as a heritage from their European ancestors. Elsewhere, in today's pre-industrial countries, annual rates of growth of around 1 per cent per annum have been achieved over periods of about a generation (rarely more) by regions which have been able to develop a profitable trading relationship with the industrial expanding areas. But such achievements have been precarious and readily reversible. For the majority of countries in which the mass of the population is tied down to agricultural or domestic pursuits the secular rate of expansion in real incomes per head has probably averaged under half of one per cent per annum, if indeed it has been as high. At this rate incomes per head would take about 140 years to double.

Rates of growth for industrialised countries

So much then for the rates of growth which have been characteristic of the pre-industrial countries. At what kind of rate can the industrialised countries expand their real output per head and with it their standards of living? The evidence for a selection of the growing countries of the world — countries which have now passed through the crucial stages of their industrial revolution — has been examined recently by Deborah Paige. A summary of the calculated rates of growth are shown in Table II. They are ranked in order of their estimated rate of growth over the whole period considered.

TABLE II. RATES OF GROWTH IN NATIONAL PRODUCT PER MAN YEAR IN SELECTED GROWING COUNTRIES

	Starting point of data	Annual per cent increase in product per man year		
		Up to 1913	1913-59	1950-59
Japan	1880	3.4	2.6	6.1
Sweden	1863	2.4	1.7	2.8
United States	1871	2.2	1.8	2.2
Canada	1872	1.9	1.5	2.0
Denmark	1872	2.1	1.2	1.8
Norway	1865	1.3	1.9	3.1
Germany	1853	1.5	1.4	4.5
France	1855	1.5	1.5	3.6
Italy	1863	0.7	1.7	4.7
United Kingdom	1857	1.6	0.8	1.7
Netherlands	1900	0.7	1.3	3.4

Source: D. C. Paige, F. T. Blackaby and S. Freund, "Economic Growth: the Last Hundred Years", *National Institute Economic Review*, July 1961.

Here we have a wide range of growth rates. Long term rates of 1 per cent per annum and less were exhibited by Italy, which had barely started to industrialise at the beginning of the twentieth century, and by two of the three countries which had the longest history of relative affluence (the United Kingdom, France and the Netherlands). At the other end of the scale the fast growing countries were Japan (which led the field throughout), Sweden and the United States. The data for the Soviet Union have been the subject of much controversy, and it has not been possible to include comparable statistics in Table II. The evidence suggests, however, that there was a moderate expansion averaging about 1 per cent per annum over the period 1860-1913,[23] a decline over the period of the First World War and the early turmoil of the Bolshevik revolution, and a sharp increase in the period of the first two Five Year Plans, and again after World War II. The volume of Soviet industrial output is estimated to have doubled in the decade ending in 1937 and to have more than doubled in the decade of the 1950's.[24] Nevertheless it is doubtful whether the Soviet economy as a whole grew faster than the Japanese in the 1950's and unlikely that it grew as fast over the long period 1913-59.

An interesting feature of the estimates in Table II is the universally faster rate of growth in the 1950's. Many of the undeveloped countries of the world also exhibited unprecedentedly high rates of growth in the 1950's. Does this represent a change of trend in world economic growth? The period which has elapsed since World War II is too short, of course, to provide a basis for conclusive answers to this kind of question. Insofar as the upward swing of the 1950's is a postwar phenomenon, a recovery phase, it may be a purely short term trend with little long term significance. There is evidence for some countries that the pace slackened in the second half of the decade. This was notably so for Germany, Norway, the Netherlands, France, Canada and Italy. The converse was true for Japan, Sweden and Denmark where the pace accelerated. There was little or no change of pace in Britain and the United States. Nevertheless, for all the countries in the table above, the 1954-59 rate of growth was also higher than the rate for the period 1913-59, though for Britain, the United States and Canada it did not differ appreciably from the rate for the period up to 1913.

There are at least two general reasons why we might expect world rates of growth to have been appreciably higher in the 1950's than in the period 1913-50. The first, of course, is the abnormality of the former period which includes two disastrous world wars and a violent international depression. None of the growing countries sustained a steady rate of growth through these stormy years. Nor was this uncertain and depressed international environment one in which most of the pre-industrial countries could hope to find a means of escape from stagnation. The other reason to expect an upsurge in the 1950's and beyond is the fact that governments and international agencies have become much more aware of the needs and techniques of promoting growth. Economic plans deliberately designed to raise aggregate national output are no longer the exclusive preserves of dictatorships or the socialist countries and though governments vary enormously in the effectiveness and degree of dedication with which

23. Raymond Goldsmith, "The Economic Growth of Russia 1860-1913", *Economic Development and Cultural Change*, April 1961, Vol. IX, No. 3.

24. N. M. Kaplan and R. H. Moorsteen, "An Index of Soviet Industrial Output", *American Economic Review*, June 1960.

they pursue the carrot of growth there seems little doubt that they are becoming collectively more experienced and more competent in matters of economic policy.

To some extent too, growth must be contagious. The rapidly growing countries may find themselves slowed down by the competition of the late starters, but countries which are looking for openings, either to begin growing or to adapt to the pressures of competition will find more opportunities when international markets are growing than when they are stagnant. The benefits of technological progress accrue not only to the innovator but to his customers and eventually to his rivals: the wider a country's range of international contacts and the closer its relationship with growing economies, the more likely is it to share in the progress that has its origins outside its own borders.

World rates of growth

Can we draw any quantitative conclusions then concerning present and past rates of growth of world incomes? Without an adequate framework of national income estimates we can advance only the most tentative and approximative hypotheses concerning current rates of growth. In an article published in 1960 Professor Everett Hagen[25] classified the countries of the world into areas which were (a) certainly growing, (b) very probably growing, (c) possibly growing and (d) not growing. There are enough data for most of the 'certainly growing' group and some of the 'very probably growing' to indicate their rates of growth in the recent past. If we generalise for the rest on the assumption that the other 'very probably growing' countries are expanding their average incomes at rates varying from one to one and a half per cent per annum and the 'possibly growing' group at 0.8 per cent we arrive at an estimate for the world rate of growth in the 1950's of between 2 and 2½ per cent per annum. On a similar calculation based on estimated 1913-59 rates of growth and on the assumption that the undocumented countries in the 'probably' and 'possibly' growing groups were experiencing rates of between half of one per cent and one per cent per annum, we get an annual long term rate of growth for world incomes taken as a whole of between one and one and a quarter per cent.

There is no need to emphasise the approximate nature of calculations such as these. At best they suggest probable relative orders of magnitude. If the world as a whole was expanding its average incomes at a rate of 2 to 2½ per cent per annum in the 1950's (that is, at a rate which implies a doubling of the standard of living in 30 to 35 years) this was probably more than twice as fast as it had grown in the preceding half century and almost certainly faster than it had ever grown before. Before the twentieth century the industrial revolution had barely started to spread beyond the borders of four or five countries and most of the world's economies must have been raising their income levels at less than half of one per cent per annum. By the mid-twentieth century world industrial production was expanding at an annual rate of about 4½ per cent per annum, and world trade by about 3½ per cent.[26] Meanwhile world population was growing at something less than 2 per cent per annum and world agricultural production at about the same rate.

25. Everett E. Hagen, "Some Facts about Income Levels and Economic Growth", *Review of Economics and Statistics*, February 1960.

26. United Nations, *Monthly Bulletin of Statistics*, May 1961.

PROSPECTS OF GROWTH

What then of the future? The answer to the question of how fast world incomes are likely to grow in the future is of course highly problematical, even aside from the political considerations which may complicate the picture. But it is of some interest to try to distinguish the separate strands in the problem of what determines the future rate of world economic growth. Four main strands can be readily identified: (1) the future rate of growth of the industrialised countries; (2) the interaction between the industrialised and the unindustrialised countries, that is, the extent to which the expansion of the former provides increased outlets for the products of the latter; (3) the rate at which the pre-industrial countries can adopt the productive techniques associated with what is generally described as an industrial revolution; and (4) the rate of population growth in developed and undeveloped countries respectively.

How fast can the industrialised countries grow in the long term? Judging by past experience, at rates of between 2 and 3 per cent per annum, though if wars and severe depressions are eliminated faster long term rates may become normal. This compares with a sustained rate for pre-industrial countries that has generally been under 1 per cent per annum; though they have reached rates of over 2 per cent in exceptionally favourable circumstances as, for example, when their primary products supply an insatiable world demand or when the rate at which they can shift man power from agriculture to industry is high.

To what extent will the economic growth of the industrialised countries expand the markets open to the unindustrialised countries? Between 1938 and 1960 the volume of exports from the undeveloped areas of the world expanded at an annual rate of under 2 per cent per annum,[27] that is, very little faster than their population increase. Moreover, a larger part of the increased exports flowing from unindustrial to industrial areas was attributed to the growth in the volume and value of petroleum products which have more than doubled in relative importance since 1938.[28] For most non-industrial countries there is little prospect of expanding exports in step with the growth of incomes in the developed countries for two main reasons: (a) because of low average income elasticity of demand for their products, and (b) because of the tendency of technological progress in manufacturing industry to involve either synthetic substitutes for imported raw materials or economies in their use. Significantly enough, the group of countries which has recently made the most rapid strides in the direction of increasing industrialisation has experienced a somewhat slower growth of export incomes than the rest of the non-industrial countries.[29]

In effect, therefore, prospects of economic growth in the non-industrial areas of the world depend primarily on the rate at which they can increase

27. United Nations, *Monthly Bulletin of Statistics*, April 1961.

28. G.A.T.T., *Trends in International Trade*, Report by a Panel of Experts, Geneva, October 1958, p. 21.

29. *Ibid*, pp. 24-6. The countries concerned are Argentine, Brazil, Mexico, Australia, India (including Pakistan), Union of South Africa, Finland and Yugoslavia. The reason seems to be that some industrialisation policies carry an anti-export bias, for example, a country which finances development by monetary inflation will find that this militates against its exports. Also, the substitution of infant industries for established agricultural pursuits may tend to lower export incomes in the short run.

agricultural productivity or shift resources from agriculture to industry. What are the possibilities of rapid transformation of this kind? There is some evidence that the growth potential of the countries which industrialise at a later stage is higher than that of their predecessors. Germany and the United States grew more rapidly than Britain, for example, and Japan more rapidly than either, while if we may judge from the official statistics of progress in the Soviet Union since the 1920's, the latter seems to have broken all previous records. There seems also to be some evidence of a relationship between the potential rate of growth and the starting level, a relationship which is conditioned by the community's response to a confrontation of its own economic capacity or level of living with that of the other countries with which it comes into cultural contact or conflict. It is not possible to draw quantitative implications from such imponderables as these, but it is significant that the evidence for Japan indicates rates of growth in product per man hour amounting to about 3½ per cent per annum over the period 1880-1913, 4.4 per cent over the period 1922-38 and 6.1 per cent over the period 1950-59. These are phenomenally high rates of growth and if they shed no light on what is likely to be the future achievement of today's newly industrialising countries they do show what has proved to be within the realms of possibility for a country which started to industrialise late from a very low level of income and productivity.

There is one important respect, however, in which the Japanese experience differed from that of most of today's unindustrialised or newly industrialising countries, that is, in the extent of the population pressure it faced in the early stages of its industrial revolution. In Japan as in most of today's developed countries the peak rates of natural increase were not reached until the industrial transformation had already generated rising income levels and in any case did not much exceed 1½ per cent per annum. In many of today's underdeveloped areas the rate is already past the 1¾ per cent mark and in some it is in the region of 3 per cent and is still growing.[30] It is difficult to overemphasise the importance of this factor. In areas where population is growing at a rate of 3 per cent per annum the doubling of output in a generation will be insufficient to raise per capita product. Productivity per worker must grow faster still since the high rate of natural increase brings with it a relative scarcity of adult workers. The 15 to 65 age group, which supplies the bulk of the active labour force, accounts for substantially less than 60 per cent in most underdeveloped countries and about 65 per cent or more in the economically developed regions. In some Asian and West Indian countries the problem is further complicated by the fact that the population is already high in relation to the national endowment of land and other natural resources.

In these circumstances a crucial bottleneck to economic progress is the food supply and it is difficult to see how the newly industrialising countries can hope to sustain an appreciable rate of growth of real incomes per head without two simultaneous developments: (a) an unprecendented increase in product per

30. Projection of the 1941-51 rates for India suggested a rate of growth of under 1½ per cent per annum (see Report of the Census of India 1951). But projections made by the Office of Population Research, on some fairly plausible assumptions concerning a continued decline in the death rate and unchanged fertility, indicate a rate of growth of between 2 and 2½ per cent for the period 1961-71. See Ansley J. Coale and Edgar M. Hoover, *Population Growth and Economic Development in Low Income Countries,* Princeton: Princeton University Press, 1958, pp. 34-42.

worker in agriculture, and (b) a rapid shift of labour power from agriculture to industry. Given the primitive character of the prevailing agricultural techniques in the undeveloped countries it is clearly possible in principle to achieve substantial improvements in yield merely by the application of existing knowledge. Except in areas where the sheer weight of population is such that diminishing resources per acre have already set in, the rate of growth of output per head depends primarily on the readiness of the agrarian population to adopt new techniques of cultivation and family planning.

These are factors which it is impossible to assess except in relation to particular countries and situations. If the communist revolution renders the Chinese farmer more responsive to innovation than his predecessors (in China and elsewhere) then unprecedented advances in agricultural productivity are possible. If Indian planning generates sufficient new investment in industry the transformation to an industrial economy may take place more rapidly than ever before. If any developing country is able to avert a population explosion by introducing effective family planning the rate of economic growth may be correspondingly accelerated. If the political and social framework cracks under the strain of the economic changes which are being forced into it — as has already happened in parts of Central and Southern Africa — growth may be turned into decline. In short, we have reached the limits of plausible generalisation.

It is not obvious where and how the breakthrough will take place, but it is certain that it is nowhere a simple matter of imitation. The obstacles which bar the threshold to a successful industrial revolution and sustained economic growth for today's undeveloped countries are generally more formidable than those which have been surmounted in the past. Once across the threshold their growth potential may be beyond all previous experience. It is the transition that is difficult. Perhaps this has always been so and the few countries which have already industrialised did so because they were lifted across the threshold by a wave of exceptional advantages.

To predict the future trends in world incomes it is necessary to assign values to a host of uncertainties — to the trend in the death rate for example, and to the strength and significance of economic trends that have shown up in the recent past. It is all highly subjective, ephemeral and uncertain. Nevertheless we can take some bearings and suggest probable limits.

An optimistic approach is illustrated by the detailed estimates recently compiled by Rosenstein-Rodan in an attempt to gauge the needs and effects of international aid for underdeveloped countries.[31] If we weight his forecasts of growth in gross national product per head for 1961-66 by his estimates of each country's gross national product for 1961, we reach the conclusion that the average rate of growth in incomes per head for the world's underdeveloped countries (excluding the Communist bloc) is likely to be in the region of 1¾ per cent over the next quinquennium. But these estimates include the assumption that a number of countries have already "taken-off" into self sustaining growth (in particular Brazil, Chile, Colombia, Mexico and India); they take

31. P. N. Rosenstein-Rodan, "International Aid for Underdeveloped Countries", *Review of Economics and Statistics*, May 1961.

no account of political problems which have flared up recently in parts of Southern and Central Africa outside the Belgian Congo, and they are based on a sample of national income estimates which are probably biased towards an overstatement of recent growth. If we accept them, however, as giving an indication of the rate of growth applicable to the quarter of the world's incomes earned by underdeveloped countries and apply an equally optimistic rate of 3 per cent to the three quarters earned by the relatively developed countries the implied overall rate of growth for the world as a whole is between 2½ and 2¾ per cent per annum over the next quinquennium.

An approach which gave more weight to the historical evidence, to rising population trends and to indications that the postwar economic upsurge is steadily losing its momentum, however, would suggest that the short term prospects were of a rate of growth of between 2 and 2¼ per cent and that the long term prospects were somewhat lower. In any case, for the next few decades, the pace of advance in world output per head is likely to be set by the industrialised countries which already contain more than three quarters of the world's incomes and not much more than a quarter of the world's population; and the way in which they dispose of their output will partly determine the rate at which average standards of living rise in the developed and undeveloped countries respectively. But for most of today's pre-industrial countries, *a fortiori* those with high rates of natural increase, it would seem that there is little present prospect of doubling the average standard of living within less than four decades.

A WELFARE STATE OR A SOCIALIST STATE? A REVIEW ARTICLE ON *HAS CAPITALISM CHANGED**

By Harry T. Oshima

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I

This book deals with some of the crucial issues of our time. To this author, whose thinking leans towards a welfare-oriented state, most of the papers in the volume are provocative and challenging. With the exception of papers by John K. Galbraith, Paul Baran and Yakov A. Kronrod, the book is essentially a statement of Shigeto Tsuru's views on the nature of contemporary capitalism with comments by John Strachey, Paul M. Sweezy, Charles O. Bettelheim and Maurice Dobb.

In appraising the book, it is convenient to focus on Tsuru's papers. Despite some differences in the reasoning, Kronrod, Sweezy, Baran, Dobb and Bettelheim appear generally to concur with Tsuru in the major conclusions, with dissenting views from Galbraith and Strachey.[1]

II

As Tsuru puts it, the major question posed in the book is: "Has capitalism undergone sufficient evolution to become immune to the type of major depression like the one in 1929-1933?" (p.3) The discussion is carried out mainly in terms of the U.S. economy, and Tsuru is sceptical that there have been sufficient changes in U.S. capitalism to warrant the belief that major depressions can be avoided.

His main argument may be stated in two parts as follows:

(a) ". . . . the existence of sufficiently large offsets to saving does constitute a condition for business prosperity under capitalism". In the U.S. in 1956 only two-thirds of the gross national product (GNP) was personally consumed. Defining saving as that part of GNP not personally consumed, he points out that, for sustained prosperity, offsets to saving amounting to one-third of GNP must be found in the U.S. In the current postwar period, it is possible to find some of these offsets to saving in defense expenditures, in private gross capital formation, foreign aid, consumer credit purchases and "institutionalization of waste".

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1. In the Appendix to this article, various topics (imperialism, the U.S. growth rate and income distribution, and the Soviet growth rate and income distribution) mentioned by some of the authors are briefly discussed.

(b) He then goes on to argue that since all these expenditures as a proportion of GNP have reached their limits, there is no prospect for any future increase, and in the case of defense expenditures the absolute amount is already so large that it is "rather questionable that the U.S. can spend more", so that "it seems to be more reasonable to expect even an absolute decline as time goes on".

Since the U.S. economy is still essentially a profit-motivated economy, when defense expenditures are reduced, the government will not embark on a large-scale spending program nor on a program to expand personal consumption. Hence, this "leads inevitably to the conclusion that . . .even though a prosperity might be sustained for some time under certain circumstances, it is likely to be followed by a depression in due course. . . ."

It will be convenient to discuss this point at this stage. The whole argument proceeds on what seems to be a mistaken proposition concerning defense expenditures. According to Tsuru, private capital does not object to defense expenditures because they are "wasteful objects in the sense that they do not contribute to the reproduction process", and hence are the "ideal type of government spending". All this is most puzzling. It would seem that precisely because they are wasteful, that is, they do not substantially contribute directly or indirectly to the production process, the capitalist would want to shift spending on defense expenditures to something productive, though not to something competitive to his business.

Defense expenditures being non-productive cannot be repaid. Assuming that offsets to savings are needed, the ideal would be *loans* to local governments and households for the purchase of social overhead items (parks, sanitation, waterworks, roads, schools, hospitals)[2], consumer assets (durables, dwellings) and consumer services (foreign travel, higher education). Far from being competitive with business, spending on these will be complementary and even helpful to business in supplying external economies, a skilled and more contented labour force, work incentives, and a larger effective demand. Also, being largely productive, these loans will be repaid with interest.

This explains in part the fact that in the postwar years it was under the conservative Republican regime that defense expenditures tended to be reduced. And despite the tendency for savings to be short, rather than too much, in the postwar years, loans to households and local governments have been rising.[3] With a step by step move towards disarmament, defense expenditures will be gradually shifted in part to loans to less developed countries, in part to suburbanization and social overhead, in part to consumer asset formation and in part to education, foreign travel, research, and grandiose international schemes such as the building of another Panama Canal or an Alcan Highway. As long as they are productive and are not wasteful, these expenditures can be made on a loan

2. An almost inexhaustible list of things need to be done, such as overhauling the cities, slum clearance, expansion of suburbanization, agricultural public works and waterways, which could not be done in the past due to defense expenditures.

3. See Harry T. Oshima, "Consumer Asset Formation and the Future of Capitalism", *Economic Journal*, LXXI, March 1961, pp. 20-35.

basis, and even though they may not be more profitable than business loans, they are not losing propositions as defense expenditures are.[4]

The large size of defense expenditures is not due to the desire of the U.S. capitalists to find ideal types of offsets to savings to avoid major depressions, since they are not Keynesians. Rather these expenditures reflect the opposition of the American people to the further take-over of countries by the Communist powers, in the same way Roosevelt's New Deal raised defense expenditures, not for offsets to savings, but to stop the spread of Fascism. It is not certain how much of this simplified explanation for the large defense expenditures Tsuru will accept, for he does not say anything directly, as far as can be made out, as to the origin and reason for these expenditures.

Another point is that Tsuru's views underestimate the relative strength of what he calls "democratic forces" in American politics, but which are perhaps better designated as welfare forces. An important section of the big business group does not have serious objections to many features of a welfare state, especially the section engaged in industries selling mainly to employed households. Full employment plus social security benefits help to keep demand for their products high and it is this demand which mainly determines profits, not low wages. They favour minimum wages since they are paying more than the minimum. And since the Great Depression the voices of labour unions and smaller farmers are important in the operation of the Democratic regimes and cannot be ignored even by the Republican regimes. We shall attempt to demonstrate how the views of welfare forces have been *already* worked into anti-depression factors and constitute major changes in American capitalism since the nineteen twenties.

The main anti-depression factors can be enumerated as follows: parity prices won by farmers; wage determination by collective bargaining, shorter hours and better working conditions won by unions, minimum wage laws for unorganized labour; social security benefits for the unemployed, old age and war veterans; extremely progressive income tax rates; government guarantees on mortgage loans permitting favourable terms for households in borrowing from banks. These encompass a broader mechanism than the automatic built-in stabilizers. How they work in recessions to prevent depressions of the magnitude of 1929-1933 may be best seen by comparing the contraction of 1929-1933 with those of 1953-1954, 1957-1958 and 1960-1961.[5]

The major reasons for the severity and length of the depression of the 1930's may be seen in the statistics relating to that period. With farm prices falling, the income generated in agriculture tended to fall as early as 1926, and when the contraction started in 1929, it fell 25% in 1930. This decline

4. Sweezy does not think that large-scale aid to foreign countries will be possible because of the "deeply ingrained capitalist abhorrence of giving anything away without receiving in return an immediately related and measurable *quid pro quo*. . . ." But this is precisely why foreign loans will be preferred over military expenditures by the capitalist classes, if and when military expenditures can be reduced and offsets to savings are needed.

5. For this purpose reference will be made to the national accounting statistics of Simon Kuznets and of the U.S. Commerce Department. See Simon Kuznets, *National Income and Its Composition, 1919-1938,* National Bureau of Economic Research, 1941, pp. 310 *et seq* for the 1920's; U.S. Commerce Department, *U.S. Income and Output,* pp. 118 *et seq* for 1953-1954; *Survey of Current Business* — July 1960 issue for 1957-1958 and January 1961 issue for 1960-1961. Also see the Commerce Department's *National Income,* 1954 edition.

in the late 1920's was covered by increases in consumer credit and mortgage.[6] In contrast, because of parity prices and because of social security benefits helping to maintain demand, farm income fell only 4% in 1954 from 1953; it actually rose 15% in 1958 from 1957, and has probably gone up from March 1960 to December 1960.

In the 1920's the rise in employee compensation was slight compared to that of the 1950's. With the onset of contraction, employee compensation fell by 8% from 1929 to 1930. In 1954 it fell by less than 1%; in 1958 it actually rose by 1%, and has been rising from March 1960 to December 1960.[7]

Average hourly earnings in manufacturing between 1924 and 1929 increased only slightly and fell sharply from 1929, but in the postwar years they have been rising consistently and rapidly from $1.05 in 1944 to $2.27 in 1957. For this the unions' role in collective bargaining must be counted a major factor.

As important as this behaviour of work incomes are the taxes on corporate profits. In 1929 only one-ninth of corporate profits were taken by the government, in contrast to one-half in the 1950's. Even higher are the tax rates on family incomes of the top brackets. It is this important cornerstone of the welfare state that makes the built-in stabilizers of the U.S. so much more effective than those of other countries, even though the social security benefits are not as generous and certain improvements are now under consideration.

The term built-in stabilizers is too euphemistic to adequately suggest the actual achievements of the welfare forces which underlie the mechanism. The anti-depression strategy of the welfare state of the 1950's in contrast with the *laissez-faire* state of the 1920's is as follows: while parity prices and union wage contracts prevent work incomes from falling, the high taxes transfer incomes from the upper and the property classes during expansion years to the lowest income groups during contraction years, thus maintaining consumption levels.[8] Thus while personal consumption fell 12% between 1929 and 1930, it rose during all the postwar recessions. And with these holding actions in operation, loans to households and local governments which do not borrow to maximize profits are increased.[9]

But welfare forces are not solely responsible for all these improvements. The other aspect must be explained if the theory of the welfare state is to be properly grasped, and this is the enormous productivity and dynamism of American private industry. The rapid rise in productivity of American farms

6. See Harry T. Oshima, "Debt Repayment and Cyclical Fluctuations," *Review of Economics and Statistics*, XL, February 1958, pp. 72-77.

7. A major reason for this may be seen in a new study by Albert Rees, *New Measures of Wage-Earner Compensation in Manufacturing, 1914-1957*, National Bureau of Economic Research, Occasional Paper 75, 1960.

8. The income redistribution effect of the built-in stabilizer is not insignificant. For example, in the two years 1950-1951, the consolidated government accounts show an average surplus of $7 billion which is equal to the $7 billion average deficits in 1953 and 1954. These are significantly large when compared to declines in incomes originating in manufacturing and mining.

9. If these are not enough, there is one particularly powerful weapon held in reserve, namely an all-round income tax cut for a limited duration, say one year. Since this is for a limited period, it need not affect the working of the automatic stabilizer for future expansions. Compare Tsuru, p. 61. It is most likely that during the 1960's there will be no need to resort to temporary tax cuts, chiefly because from now on new household formation will begin to rise rapidly with the 'war babies' finishing high schools and also because of the enormous backlog of demand for social overhead investment.

and industries, as a result mainly of research and innovation, has made possible vast shifts of workers from material commodity production to tertiary industries, from farms and factories to offices. As Professor Arthur F. Burns has pointed out, the economic activities in tertiary industries are relatively stable in the short run as compared to material-production industries.[10] This is largely because since services cannot be stored, the purchases of most services cannot be postponed.[11]

Income originating in the material-producing industries dropped 17% between 1929 and 1930 as compared to 6% in the case of income in the tertiary industries such as trade, finance, service and government. Also, whereas full-time employment in the tertiary industries was 75% of the commodity producing sector in 1929, in 1957 it had grown to 110% and probably closer to 120% by 1961.[12]

The large long-run increases in productivity, part of which are passed on to employees *via* collective bargaining, result in growing *per capita* incomes without the size-distribution of income becoming unequal.[13] This in turn tends to produce low income elasticities of demand for most material products, since the point of satiation is being approached. This tendency implies that even the material-goods sector becomes geared to levels of production close to the replacement needs of households; and such levels are likely to be stable. Even for the highly volatile consumer durables, the purchase of less expensive items such as radios, television sets and kitchen and other household appliances did not fall even though the purchase of automobiles fell between 1953 and 1954. This stage is now perhaps being approached even for automobiles.[14]

Finally production workers, roughly defined as wage-earners working in factories, declined from 82% of the work force in manufacturing in 1940 to 75% in 1960 due partly to the reason explained above and partly to automation and other labour-saving devices. When the rate of factory operation is reduced, it is these workers who are dropped from employment and not the white-collar, salaried workers. This trend thus helps to stabilize cyclical employment.[15]

10. Arthur F. Burns, "Progress Towards Economic Stability," *The American Economic Review*, L, March 1960.

11. In the *long run* most of the services are highly income elastic, in particular higher education, recreation and culture, health and medical expenditures, welfare activities, personal business, etc.

12. As to the extent of waste involved in the tertiary industries, see discussion below. Note also the stabilization of dividend payments and, to some degree, of corporate investments, partly made possible by the fact that U.S. corporations are wealthy enough to finance a very large part of their expansion and add to reserves, and need not depend on banks.

13. See Appendix Note B.

14. The implications of this together with doubts regarding the stability of the Keynesian saving function in an age of consumer asset formation are discussed in a paper due to appear in the forthcoming issue of *Keizai Kenkyu*, Hitotsubashi University, Tokyo, entitled "Consumer Asset Formation and Fluctuation."

15. As inexorably as the farm population was reduced both relatively and absolutely, so the industrial wage-earning class will be reduced with the fall in the income elasticity of demand for industrial products and the spread of automation. The absolute decline in the industrial wage-earning class may have already set in as far as the U.S. is concerned. The annual average number of production workers in mining and manufacturing for 1950-1954 was 13.7 million and for 1955-1959 13.2 million at a time when non-agricultural employment was rising by 8%. Data based on *Monthly Labor Review*, supplemented by data from the *Statistical Abstract*. The peak of production-worker employment in mining is 1951 and that in manufacturing 1953. The implications of this trend for the welfare state and for socialism will be touched on below.

III

The foregoing discussion may be one-sidedly optimistic and certain fundamentally adverse forces, such as long swings and random shocks, may have been ignored which may assume importance in future recessions. But even if a future recession turns into a depression, we shall be able to get out of it much sooner than in the 1930's. For, not only do we know more about the nature of depressions, but it is precisely in periods of contraction that the welfare forces become stronger in the U.S. government, both in the executive branch and in Congress. With the decline in aggregate demand, business groups find their profits falling and are more willing to go along with schemes for raising incomes in the lower brackets and thereby bolstering effective demand. With the rise of unemployment the unions and salaried middle class will begin to push more energetically measures for increasing employment. Lastly, with the sag in the demand for farm products, price supports and similar demands will get the backing of a larger number of farmers. Since there is no irreconciliable conflict between these three programs during contractions, anti-depression measures can be agreed upon.

There is really no need to invoke here the theory of a supra-class or a neutral theory of the state. As long as each group pursues its own interest and these interests are not conflicting and may to a large extent be harmonious, the sum total of the programs of all the groups will be the solution to the problem of the shortage of effective demand. This harmony of interest is in sharp contrast to the capitalism of the nineteenth century from which Marx drew his observations regarding class conflicts.

It is possible to show that in an industrializing economy such as nineteenth century British capitalism, the capital-output ratio is rising, but that once industrialization is more or less completed, as in the U.S. since World War I, it begins to fall.[16]

For the economy as a whole the return on capital, p, is equal to net output, o, minus wages, w. If we divide each term by k, the total capital, we have the rate of profit equal to

$$\frac{o}{k} - \frac{w}{k} = \frac{p}{k}$$

Since o/k is the reciprocal of the capital-output ratio, a rise in the latter is the same thing as a fall in o/k. If therefore the profit rate is to be prevented from falling under conditions of falling o/k, w/k must be lowered by the same

16. Compare also the following:

"Thus, in the 19th century it was the rise in the capital-output ratio which lowered the rate of profit and started the cumulative downward movement. But with the capital-output ratio no longer rising, it is now the fall in aggregate demand which....reacts on the profit rate, so that the latter is determined not by the independent movement of the capital-output ratio but by aggregate demand, as Keynes and Kalecki have argued. Note here how laws of economics are conditioned by institutions and stages of development.

In order for Marx's capitalists to accumulate and accumulate (to satisfy the requirements of a rising marginal capital-output ratio), wages had to be kept down. But in the U.S. today, to keep the rate of profit high, mass consumption is needed and this entails high wages and loans to consumers in the lower-income brackets. These changes tend to blunt the sharpness of class struggles and inject an element of class harmony." Harry T. Oshima, "Consumer Asset Formation and the Future of Capitalism", *op. cit.*

amount, implying a decline in the relative share of wages. Marx was right for nineteenth century England, but in the U.S. economy today the capital-output ratio is no longer rising, with the completion of the basic structures needed for the industrialization of the business sector.[17]

Is it not then possible to accept such a change as a basic change in capitalism? Tsuru argues that in order to differentiate several socio-economic systems, it is convenient to ask: "What institutional form does the surplus take?" or "Who controls the surplus?" the surplus being defined as output over and above "bare necessities". But the latter is a slippery concept because, as Tsuru recognizes, "the bare necessities may gradually change both in quantity and quality...."

He then goes on to argue that "Under capitalism, the surplus takes the form essentially of profit". And since he finds that in the U.S. profit constitutes the motivating force, is controlled by private capital and is destined for investment, he concludes that there is no basic change. For in a profit-motivated economy, prosperity requires high profit and high profit means high investment which in turn means large offsets to savings, and these offsets could not take the form which "encroach upon those spheres of activity which private capital considers as its preserve or....depress the rate of profit....", for these are "bound to meet keen resistance from the capitalist class".

It is essential that Tsuru defines what he means by bare necessities in the U.S. today. It is true that the control of income over and above bare necessities is an important aspect of a society, but without a definition it is not possible to know that we are talking about the same thing.[18]

The National Industrial Conference Board estimates essential outlays in 1950-1956 to average about 39% of disposable personal income or roughly one-third of national income.[19] If for the moment we accept the Board's definition of essential expenditures, then is it legitimate to identify surplus with profit in the American economy? Corporate profit after tax was only 5% of national income in 1957, net interest was around 3%, cash rent around 1%, proprietors' income — assuming one-half to be work income — about 5%. The entire amount was no more than 15% of the national income in 1957. From this must be deducted taxes paid by the personal recipients which may be as large as half. Thus profits accruing to property owners was probably less than 10% of national income and only about one-sixth of the surplus, defined as non-essential income in the sense of the National Industrial Conference Board's study. This implies that a larger amount of the surplus is received by salaried employees, skilled workers, farmers and small businessmen in their capacity as managers, and by the government.

It is possible therefore to conclude from this analysis of the surplus that there is a basic change in capitalism as evolved in the United States. Most of

17. It is the element of durability in structures rather than equipment which pushes up the capital-output ratio in an industrializing economy.

18. Baran seems to define surplus as income over and above the income of production workers, that is, roughly industrial wage-earners. See Harry T. Oshima, "A critique of the concept of potential economic surplus", *Indian Journal of Economics*, April 1958, for a criticism of Baran's concept of potential economic surplus. Although Baran does not supply any estimate, his economic surplus is likely to be very large, probably more than one-half of national income in the U.S.

19. National Industrial Conference Board, *Discretionary Income*, Technical Paper No. 6.

the income above bare necessities is in the hands of the middle classes and not of the big capitalists. Also, it is because of this large amount of non-essential income in the hands of a large number of consumers that consumer demand can fluctuate so much, in contrast to underdeveloped and semi-developed economies.

Let us turn our attention to the proposition, considered crucial by Tsuru and Strachey, regarding high profits, high investment and large offsets to savings. "Since profit is generally destined to investment, high profit means high investment, or in other words, in order to have prosperity or full employment, there has to be a sufficient amount of 'offsets to savings' forthcoming." It is difficult to come to grips with this statement. In Tsuru's definition, offsets to savings amounts to about 35% of the Gross National Product. According to the United Nations definition, U.S. investment will amount to about half of Tsuru's offsets to savings, while according to the Marxian definition, U.S. investment will probably be no more than half of the United Nations definition.[20] If the Marxian definition is what Tsuru has in mind, then investment is just about one-fourth of offsets to savings.

Elusive too is the statement that profit is generally destined to investment, or, "It *has* to be ploughed back into investment" (Italics Tsuru's). One-half of corporate profits are taxed and are offsets but not invested. Of the remainder one-half is paid out as dividends and some of these may be invested, but a very large part is directly or indirectly consumed or taxed away by the personal income tax. The other half, undistributed profits, may or may not be invested in plant, equipment or inventories in the year earned. In similar ways, other property incomes are not necessarily destined for investment. On the other hand, part of salaries and even wages may be destined for investment.

In the American economy today, households and local governments are rich enough to repay loans so that profits can be loaned out to them instead of to business.[21] The amount invested in household and local government asset-formation is now larger than in business capital formation. Hence high profits do not necessarily require high business investment and the decision to buy or borrow by households and government units becomes important in determining the size of profits. This change in the relation of profits and capital accumulation appears also to be a basic change in capitalism.

Tsuru's discussion of profits mainly helps to differentiate capitalism from socialism and feudalism, and the conclusion mainly points to a continuation of fluctuations in the capitalist economy, without any necessary implications as to the *nature* of this fluctuation, namely, its severity or its amplitude. For this question, the problem should be posed as follows: Have there been changes in profit-motivated capitalism which have altered its basic movements, and since its future movement is prognosized, what changes can be expected to occur in the future?

IV

If instead of merely looking into the past we focus our attention on future developments, certain tendencies are evident which hold great promise for the future of the American economy. As our discussion has indicated, we can

20. See *A System of National Accounts and Supplementary Tables*, U.N. Statistical Office, 1951.

21. See Harry T. Oshima, "Consumer Asset Formation and the Future of Capitalism", *op. cit.*

expect significant reductions in the inequality of income distribution which up to now has lessened but not sufficiently. With the continued rise of productivity in agriculture and industry through technological change, the amount of manual work required will decline, the farming and industrial wage-earning class will diminish, and the population will become more and more middle class, with the proportion of intellectuals, arbitrarily defined as people with college education, rising rapidly relative to proprietors.[22] The upsurge in the propensity to obtain a higher education occurring in America today is a manifestation of this trend. With greater leisure and better education, the cultural level of the American people should rise rapidly, and this should open the way to the solution of many aspects of civilization which appear to be so wasteful.

Tsuru, as well as Baran and Sweezy, is very much concerned with the problem of wastes in the American economy. They have a point here but the question is, how much of a problem; that is, how much waste is there in the American economy? To answer this question it is incumbent on the part of those who make the charge to define the concept and to work out a quantitative approximation to it. None of the writers has done this, so that it is difficult to come to terms with this problem. Nor is the theoretical mechanism by which such wastes are generated adequately worked out.

For example Tsuru states, ". . . . We may also point to the waste involved in many service industries in the U.S., in particular the waste in mutually cancelling efforts at advertising of fabulous scale now topping the annual cost of 10 billion dollars". It is hoped that in future discussions the author will tell us what are the wastes involved in many service industries; surely he does not mean that all of the $10 billion in advertising is wasteful. A large part, perhaps one-half of the amount, goes to pay for the cost of producing newspapers, magazines, radios and television programs. Moreover most of the advertising is probably not mutually cancelling effort such as in cigarette advertisements. They inform the consumer as to prices such as in the very important grocery advertising, about changes in product such as in most automobile advertising, and about changes in styles such as in apparel advertising.[23]

V

It is also difficult to comment on Tsuru's proposal for the socialization of investment flows since an outline of the proposal is not given. One point may be raised. He does not make this proposal for the American economy but for other capitalistic countries such as England and Japan. This shift is a curious one. His indictment of capitalism was based on American capitalism

22. The reduction in the farming population is already solving one of the most difficult problems American democracy has faced through its history, namely the shameful treatment of Negroes in the South. Between 1950 and 1960 there was a vast migration of Negroes to the East, North and West, and with the increasing industrialization of the South, there will be less of a tendency for the South to oppose welfare forces in Congress.

23. Joseph Gillman, *The Falling Rate of Profit*, New York, 1958, p. 81, classifies all sales efforts and accelerated obsolescence besides advertising as unproductive expenditures. But can production take place without some sales efforts, especially mass production under conditions of dynamic change and competition? And why is obsolescence socially wasteful when "a car owner is induced to discard this year's car for the next year's model"? This year's car will be sold to the second-hand dealer who will then sell it to a lower-income purchaser at lower prices. This is one of the reasons why one dollar of income in the lower-income brackets can buy more than one dollar of income in the higher brackets.

whose enormous productivity left it vulnerable to depressions arising from insufficient offsets to vast amounts of savings generated by the economy. While one may agree with Strachey that the nationalization of the British coal industry was justified because of its inefficiency, one may well question the reason for the socialization of investment flows or stocks of Japanese industries.

There is a shortage of savings in Japan, and for a long time to come there is likely to be a superfluity of offsets in the form of social overhead investments, the mechanization of smaller industries, commerce and agriculture, consumer asset formation, and so on. In a welfare state there will be no objection to the nationalization of inefficient monopolies as long as we are reasonably sure the government can operate these more efficiently than competitive private enterprises. However the socialization of investment flows as a strategy to the socialization of stocks in order to supply offsets to savings does not make sense. For what is likely to happen is that the socialization of stocks or flows of a few industries will frighten the firms in other industries which will curtail their plans for expansion and replacement of obsolete equipment, and this in turn will require the socialization of stocks or flows of more industries since more offsets will be needed.

This snowballing effect is likely to end up in a sovietized economy requiring totalitarian controls whose first victim will be the freedom of intellectuals.

VI

The general impression of the American economy that emerges from this book, of an economy dominated by giant monopolies producing 'instruments of death' and wasteful products partly in order to avoid depressions, is one-sided, misleading and defeatist. If such a picture is valid, the hope for peaceful coexistence is dim indeed. For a socialist America is the dream of only a small number of American intellectuals motivated, it is true, by the best of intentions.

As a protagonist of a welfare state, this author is of the opinion that the problem of depressions is no longer the major issue of economists of our time. The major issue is peaceful coexistence, and in this connection the problem of raising cultural and living standards of peoples in the underdeveloped countries will be crucial.[24]

Our hope is that the Marxian countries will join us in this great task since Marxism is also a kind of humanistic philosophy.[25] But we cannot agree to such things as the socialization of flows or stocks for this may lead to the dictatorship of the proletariat; nor can we agree with the implicit assumption that the industrial proletariat is necessarily *the* progressive class in history. Capitalism as it has evolved in the West in the last few decades has made possible a large degree of freedom for the intellectuals, and it is these intellectuals who have been largely responsible for the great advances in science and technology, in human thought, in the social sciences and in the arts.[26]

24. The desirability of raising such standards can be deduced from the theory of humanism as expounded, for example, by Corliss Lamont, *The Philosophy of Humanism*, New York, 1957, especially pp. 214-218.

25. See Lamont, *ibid.*, pp. 21 and 187.

26. The advances in fields outside the physical sciences should not be minimized: in philosophy, the rise of humanism; in the social sciences, the growth of an imposing body of knowledge in the form of modern economics out of classical and Marxian economics; in the arts, the development out of classical forms of modern art and music which seem to have burst asunder the limitations imposed by natural forms and natural sounds.

However humanistic a proletarian dictatorship may be, it has yet to demonstrate that it can permit the degree of freedom to intellectuals which will make possible the kind of achievements that we have seen in the last few decades.[27]

Despite progress toward the 'good society',[28] there is no gainsaying that much needs to be done in America both in regard to domestic life and in regard to relations abroad. We think that a capitalistic economy under a welfare state with humanistic goals can achieve the good society most satisfactorily. One can understand the impatience of some of the writers of this book, but socialism of the Marxian variety is likely to raise more questions than supply answers. The irrationality and shortcomings of mankind cannot be wiped out in a short time under whatever system, and in any case it seems to this author that Marx attributed too many of the ills of the nineteenth century society to capitalism.[29]

APPENDIX NOTES

A. *Imperialistic Aggression*

Tsuru gives an indirect suggestion regarding this point. He tells us that a basic characteristic of capitalism, the 'pressure to sell', has become stronger, and that "frantic efforts to monopolize a market by a powerful capitalistic interest in a nation were a major factor in imperialist aggression and are still fresh in our memory. A new era, of course, fashions up new devices; but so long as capitalism remains, the pressure 'to sell' as an imperative on each capital can be said to be ubiquitously there".

For Japanese and European capitalism *before the last war,* the pressure to sell was a major factor in imperialist aggression. But how important is this factor in the case of American capitalism and in that of postwar Japanese and European capitalism? In order for the pressure to sell to take the form of

27. The remarkable achievements of Soviet scientists, especially in the field of rocketry, are no exception to this rule. For it is well known that Soviet physical scientists are given more freedom than other intellectuals in their work. As a welfare economist, one must question the wisdom, from the viewpoint of the interest of the Russian people, of allocating vast resources to rocketry when shortages of capital and consumers' goods in many lines are so severe in the U.S.S.R.

28. A concept borrowed from Walter Lippmann.

29. The foregoing remarks relate to the role of the welfare state in the fully developed stage of economic development. In "A Strategy for Asian Development", by Harry T. Oshima and soon to be published in *Economic Development and Cultural Change,* University of Chicago, the author argues that a policy of full employment to ensure that the incomes of the lowest income groups are raised and to increase agricultural productivity, and of government investment in transportation and communication facilities, fertilizer plants, public utilities, etc., are appropriate policies of a welfare state. All other activities had better be left to private initiative. The aim of the welfare state in the underdeveloped stage is to raise the efficiency of private enterprise in agriculture, industry and services without lowering the welfare of the lower income groups. Growth under these circumstances produces industrialization as a natural and sound by-product.

imperialist aggression, certain conditions must be met. Some of these are: (1) That there are no internal areas to which the pressure to sell can be released, and (2) That imperialist aggression is relatively inexpensive and safe.

As Alvin Hansen and more recently John Strachey have pointed out, American capital in the northwestern states has largely flowed out into the western states, where land was cheap and natural resources abundant, in the period before the last war.[30] This partly accounts for the more rapid growth of the American economy relative to West European countries which put large sums of money into colonial ventures and in military expenditures complementary to such ventures.

The pressure to sell in the fifties has gone into household asset formation and into urbanization and suburbanization which mainly complement household asset formation. The reasons for this are probably very complex. One of them is that the achievement of independence and the rise of nationalism in underdeveloped countries and the military power of communist countries make imperialist aggression too expensive and dangerous. Also important is the rise of welfare forces in the advanced countries and their demand for credit to purchase consumer durables, social investment, and so on. This explanation may also be pertinent for understanding the very rapid growth in recent years of Japanese, West German and Italian capitalism besides their ability to import and absorb the latest technology, mainly from the United States.[31]

It is a noteworthy point to ponder that this pressure to sell in the present world context of strong nationalism may be a favourable factor in bringing about conditions of peaceful coexistence because it may induce capitalists to sell even to communist countries and extend credit to underdeveloped countries.[32]

B. *Size Distribution of Income in the United States*

Over the long run the size distribution of personal income before tax in the United States has become more equal, however measured.[33] Available data show that between 1929 and 1956 the percentage share of total personal income going to the two lowest quintiles rose from 13% to 16%; the share to the third and fourth quintiles rose from 33% to 39%; and the share to the highest quintile fell from 54% to 45%.

Sweezy, while granting that there was a tendency toward equality, argues that: (1) The decline in the share of the upper income brackets does not take into account corporate savings and unrealized capital gains,[34] and (2) The changes were presumably caused by the social and fiscal reforms of the New Deal. He cites a study by Mrs. Goldsmith that "there have been no changes since 1944",[35] and concludes thus: "The inference seems obvious that there is

30. See Alvin Hansen, *Full Recovery or Stagnation*, London, 1938 and John Strachey, *The End of Empire*, London, Victor Gollancz, 1959.

31. Kronrod is mistaken in thinking that the loss of colonies will weaken Western economies. On the contrary it will strengthen them by stopping the leakages of savings to colonies and by requiring greater efficiencies in capitalist enterprises in order to meet competitive challenges.

32. As witness the eagerness of Japanese, West German and British capitalists to trade with Communist China.

33. See U.S. Commerce Department, *U.S. Income and Output*, pp. 44-46.

34. This point has been made in detail by Robert J. Lampman in "Recent Changes in Income Inequality Reconsidered", *American Economic Review*, XLIV, June 1954, pp. 251-268.

35. Selma F. Goldsmith, "Changes in the Size Distribution of Income," Papers and Proceedings of the 69th annual meeting of the American Economic Association, *American Economic Review*, May 1957.

no inherent tendency toward greater income equality operating under monopoly capitalism".

On Sweezy's first point, the problem essentially is, to what extent has the ownership of corporate stocks and bonds become more concentrated? Lampman has now published a study showing that this concentration has not increased, and concluding that "Our finding that the share of wealth held by the top two percent of families fell from about 33 percent to 29 percent from 1922 to 1953, or by about one-eighth, would seem to be not incompatible with Kuznets' findings".[36]

On his second point, social and fiscal reforms did not stop with the New Deal but continued into the Truman Administration, as witness the Employment Act of 1946, the changes in the tax laws, social security, parity prices, veterans' rights, and so on.[37]

Finally, in taking 1944 as a year of comparison, Mrs. Goldsmith was not concerned with Sweezy's problem of analyzing inherent tendencies since 1944 was a war year with a war economy. Mrs. Goldsmith has in fact supplied us with detailed data for all postwar years up to 1958 and the data up to then were available to all at the time this book was being prepared for publication. The data show that the lowest 40% of income receivers in 1958 obtained 15.8% of total personal income as compared to 15.7% in 1950, the next 40% of income receivers obtained 38.7% as compared to 38.2%, and the highest 20% obtained 45.5% as compared to 46.1%. This does not on the surface appear to indicate substantial overall reductions in inequality, but the trend is unmistakable in the reduction in the standard deviation of the quintile shares of personal income.[38]

The underlying long-term forces making for equality are also clear. Some of these are: (1) A drastic reduction in the share of dividends, interest and rent in personal income from 21% in 1929 to an average of 12% in 1947-1959. There are several reasons for this, one of them being the strength of the labour unions in wage determination, but one point has not been sufficiently emphasised. The heavy taxation of corporate profits and of high personal incomes in the earlier year has taken away a large chunk of income which would have been invested then and would have contributed to the increase of property incomes before tax in the present period. (2) A decline in the rural economy, especially in the number of farm households, due to the rise in agricultural productivity. (3) A decline in productivity differentials inter-firm, inter-industry and inter-occupation, with the reduction of small firms. (4) A relative decline in the size of the industrial wage-earning class and from now an absolute decline in this class, with automation and a drop in the income elasticity of the demand for industrial products. The last three tendencies are clearly inherent in capital-

36. Robert J. Lampman, "Changes in the Share of Wealth Held by Top Wealth Holders", *Review of Economics and Statistics*, XLI, November 1959, pp. 379-392.

37. See for example A. Hansen, *Business Cycles and National Income*, New York, 1951.

38. This is a superior measure of inequality as compared to other measures such as the concentration ratio, the standard deviation of the logarithms of income, or the coefficient variation, for the purpose of international comparison or long-term variation for a single country. See Harry T. Oshima, "An International Comparison of Size-Distribution of Income." To be published soon in *Review of Economics and Statistics*.

ism whose productivity is rising, and since they are in part responsible for the rise in the power of welfare forces, even the first is an inherent tendency.[39]

In contrast to Sweezy, Tsuru asks if this trend toward equality is not "to impair the functioning of the profit-oriented economy". The fall in the percentage share of property incomes is not an indication that the absolute volume of property incomes is falling, except possibly during recession years. This trend toward equality, especially if we take the size distribution of disposable income, strengthens capitalism by supplying mass markets for its products through the raising of the lower-income to the middle-income bracket.

C. *Growth Rates in the U.S. and in the U.S.S.R.*

Tsuru feels that "the much talked-about prosperity (in the U.S.) of the post-Second World War is not particularly remarkable when compared with that of the post-First World War", the growth rates in the two periods being respectively 2.2% and 2.9%. But it *was* remarkable, for in the present period it has been achieved in the face of massive aid given to Western Europe, to Japan and to underdeveloped countries totaling $81 billion up to 1959; large defense expenditures internally; large business expenditures for research averaging about $8 billion per year recently; and investment in consumer asset formation. Aids and defense expenditures largely drop out of American reproduction and are not productive of output in the next period. Much more than in the twenties, American industry has to supply new technology and new products from its own research instead of importing from Western Europe. Finally, savings flowing into households are less productive of output than investment in factories, even though they yield large amounts of utility.

There are frequent references to the high rate of growth of the Soviet Union. Thus Dobb writes: "At any rate, is not the contrast between the rates of growth in the eastern world and 'recession' or stagnation (or at best intermittent and slow advance) in the western world sufficient to show with which system lies the history of the future?" Even on the basis of present information one can conclude that eastern rates of growth are impressive. But the question that Dobb raises is, are they substantially more impressive than western rates? Since the rates of growth in the western countries have in most cases been as high as those reported in the eastern world in recent years, Dobb is evidently thinking of the long-term rates, especially in the Soviet Union.

There are many problems in the Soviet estimates of long-term growth rates. One major issue is, to what extent are the slow-growing sectors of the Soviet economy (for example, handicrafts, domestic production, labour-intensive industries and small units of service industries) covered and what weights are given to them, especially for the earlier years? All these sectors must be included because what is at issue is the ability to produce or the performance of the economy, and not welfare. The upward bias can be enormous for less developed countries which do not start their estimation with labour force statistics based on

39. These tendencies are probably in operation in other welfare states such as Western European countries, for Kravis' study indicates that their degree of inequality is as low as or lower than that of the United States. See Irving B. Kravis, "International Differences in the Distribution of Income", *Review of Economics and Statistics*, XLII, November 1960, pp. 408-416.

censuses.[40] A further question is therefore this: are Soviet estimates based on such data? Since no one in the West has seen the worksheets of Soviet computation or has other sources of information on the methods used, these questions are difficult to answer.

The recent experience of Japan and Western Europe indicates that, even with very rapid, sustained growth, the small-unit and the low-productivity sectors continue to play a major role in the overall economy. It is difficult to believe that these sectors were unimportant in the Soviet Union in the thirties and the forties and indeed even in the fifties and at the present time.

The computation of reliable real income rates for such a vast country as the U.S.S.R. is a very complex operation, and problems such as regional price differentials are likely to be difficult to solve.[41] As long as the eastern world denies its intellectuals the right to criticize freely every aspect of its statistical compilations and continues to conceal strategic details of censuses and methodology, it is only natural that we can have very little confidence in the statistics of their growth rates. And if the veil of secrecy is lifted from these and other sources of information, we may be able to see more clearly how the national product of the eastern world is being produced, distributed and consumed and above all, what kind of citizen is being created under socialism. Only then will we be able to see with which system lies the history of the future.[42]

D. *Size Distribution of Income in the Soviet Union*

Another interesting problem is to compare the size distribution of income in the Soviet Union with that of advanced capitalist countries.

One would think that socialist countries would be publishing the finest statistics of the size distribution of family incomes. On the contrary, to the best of our knowledge, none whatever has been published for any of the socialist countries, although rough data for many Western countries are available. One study of size distribution is the pioneer work of Abram Bergson.[43] This is, however, a study mainly of the distribution of daily wages of about 1% of the total labour force during one month in 1928 and in 1934. This is thus in fact a study limited to the wages of about 5% of the total wage and salary earners, and probably comprising the better-paid Soviet wage and salary earners.[44]

In the absence of the necessary data, let us speculate as to the nature of the distribution in the Soviet Union relative to that of countries like the United States. One factor making for greater equality in the U.S.S.R. is the absence of

40. See Harry T. Oshima, "National Income Statistics of Underdeveloped Countries", *Journal of the American Statistical Association*, Vol. 52, July 1957, pp. 162-174, for a discussion of the unreliability of estimates which do not use labour force data based on censuses as controlling totals.

41. This complexity can best be seen in the extensive work of the National Bureau of Economic Research and the United States Commerce Department. Altogether this work constitutes one of the great achievements of modern economics.

42. As a kind of epilogue to this it is worth while reporting that on the basis of rough estimates of the Soviet labour force for 1955 made by the National Bureau of Economic Research, this author has found that the proportions of the total labour force occupied in agriculture and in industry (mining, manufacturing and utilities) were two-fifth and one-fifth respectively. These proportions are similar to those of Japan.

43. Abram Bergson, *The Structure of Soviet Wages*, Cambridge, Mass., 1946.

44. The data are also limited to large-scale establishments which in 1928 were a relatively minor sector of the Soviet economy.

property incomes in the receipts of families, except for a small amount of interest receipts. Dividends plus undistributed profits, cash rental and interest incomes in the United States are not as large as some may think, probably about 10% of personal income including undistributed profits. A part of this 10% is received by the middle quintiles, as is also true of a large part of proprietors' income.

Even more important than property income in making for inequality is the relative size of the rural sector. Since half of the Soviet population live in the rural sector where incomes are likely to be low, there will be one frequency distribution for the rural population and another for the urban sector, so that the frequency distribution for the Soviet Union as a whole will be bi-peaked. The degree of inequality will be determined to a large extent by the differential in the average incomes of the two distributions, that is, it will be determined by the relative poverty of the rural population.

Another factor is the size of the standard deviation of the urban and of the rural distribution. If the primitive sector in relation to the highly modernized sector (not only for manufacturing but also for transportation, construction, mining and services) is large, or if the economy is unevenly developed due to the short period of Soviet growth and the devastation wrought by the Nazis, then the standard deviation in the urban distribution is likely to be large. The standard deviation for the rural sector may also be large if there is wide disparity in soil fertility, degree of mechanization, proximity to markets, level of farming skill of the Soviet farmers throughout the vast territory of the U.S.S.R. Compared to all these heterogeneities, the absence of property incomes in the latter is a minor factor in the problem of inequality.

Nor is it certain that the inclusion of free communal services in the concept of family income will be favourable to the U.S.S.R. Such services are not small in volume even in the U.S. if one includes, besides education and health, recreational services of public parks, roads, beaches and other community services which are large in an economy where consumer asset formation predominates. Moreover, while in the Soviet Union most of the communal services are financed by regressive turnover taxes, in the United States most of them are financed by progressive income taxes. Therefore that part of communal services not financed by the lower income groups, that is, the part that is truly free, is likely to be larger in the United States. This is especially so because the upper income groups tend to use much less these public facilities than the lower income groups, unlike in the Soviet Union where comparable private facilities are not likely to exist.

All this of course is sheer speculation. The problem calls for statistical information on many aspects of Soviet income, if we are to reach scientific conclusions regarding socialism and income equality and, in the case of growth rates, regarding socialism and efficiency.[45]

45. Since the foregoing has been written, the Soviet Union has published a draft of its 20-year long range plan. (See text as published in the *New York Times*, Aug. 1, 1961.) The author feels that the speculative remarks made in Appendix C and D above are not inconsistent with the description of the present condition of the Soviet economy that is implicit in the draft plan.

Incidentally, it is not possible to understand modern America with obsolete tools such as Marx's reproduction *schema*, (see e.g., Y. Kronrod's chapter). Unlike the times of Quesnay and A. Smith, the service sector is not "derivative" nor its income "redistributed", since services are mainly consumed by the employed population.

THE MALAYAN RUBBER REPLANTING TAXES*

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REPORTS OF RUBBER SMALLHOLDINGS ENQUIRY COMMITTEE

As early as in the 1930's many progressive rubber estates in Malaya had already realised the need for replanting rubber trees and had accordingly set aside funds for replanting work.[1] But the general need to replant before the Pacific War was not vitally urgent, the trees then were still relatively young, and no spectacular replanting work was carried out on the estates.[2] In the smallholdings sector, for various reasons, far less, if any, replanting work was undertaken. During the Japanese occupation, the estates as well as smallholdings suffered from looting, destruction and general neglect. After the War, it was widely feared by the rubber industry and the Government that rubber trees planted in 1915 and earlier had become obsolescent and had to be replaced. On the 5th of October, 1948 the Federal Legislative Council passed a motion setting up a Rubber Smallholdings Enquiry Committee to investigate into the question of obsolescence in the smallholding rubber iudustry. The terms of reference of the Committee were as follows:—

I. "To report to what extent rubber trees on smallholdings have reached a condition or age when it is no longer economic to maintain them (having regard to the general standard of production in big estates) and for that purpose to collect such evidence or data as the Committee may consider necessary;

II. To suggest how best owners of smallholdings can be persuaded to plant or replant their holdings with high yielding rubber and to consider whether legislation is necessary and, if so, to suggest what main provisions such legislation should cover;

III. To consider and report if it is necessary that smallholders should be assisted by the Government to replant their rubber holdings with high yielding rubber and, if so, to suggest in what form and in what manner

* In order that the present article gives a complete picture of rubber replanting taxes in Malaya, some duplication of material contained in a previous article, Lim Chong Yah, "Export Taxes on Rubber in Malaya — A Survey of Post-War Development", (*Malayan Economic Review*, Vol. V, No. 2, Oct. 1960) has proved necessary, but this duplication has been minimised as far as possible.

1. See The Rubber Industry (Replanting) Board Scheme No. 2 for The Administration of Fund B, *Report On Operations By the Chief Replanting Officer for the Period 1st November, 1952 to 31st December, 1953*, Kuala Lumpur: Caxton Press Ltd., 1954, p. 1.

2. Bauer points out that important reasons for replanting undertaken by estate owners in the 1930's were "soil erosion, of loss of stand through root diseases and of excessive thinning out". See P.T. Bauer, *The Rubber Industry: A Study In Competition And Monopoly* (London: Longmans, Green and Co. Ltd.), p. 187.

such assistance should be given and under what circumstances and on what conditions; and

IV. Generally to report on such factors as directly affect the economic life of rubber trees on smallholdings and how the rate of production of such holdings can be maintained at a level higher than they are at present."

The Committee consisted of government nominated official members and several prominent local rubber producers under the Chairmanship of the Director of Agriculture. About two years later, in September 1950, the Committee submitted its Interim Report of less than four pages, of which the terms of reference occupied a goodly portion.[3] The Committee, however, came to two important conclusions.

(i) ".... that the bulk of smallholders' rubber trees are already obsolete or will shortly become so." This point was later (in 1954) driven home very effectively, with impressive statistical data, by the Mudie Mission.[4]

(ii) ".... that the maximum area of these smallholdings should be replanted with improved planting material as soon as possible." This point was also strongly emphasized by the Mudie Mission, without, it is of interest to note, any reference anywhere in the Missions's Report to any of the findings or conclusions of this Committee.

The Final Report of the Committee was submitted to the Federal Legislature in January, 1952, that is, about 1 ⅓ years after the appearance of the Interim Report, and 3 ⅓ years after the Committee's appointment. The Final Report ran to eight pages, and contained some interesting data.

It performed one important service. It drew the attention of the Government and the public to the obsolescent position in the Malayan smallholdings.

Age in years in 1952[5]	*Acres*	*Per cent*
40 years and over	375,000	27
30 — 39	562,000	40
20 — 29	338,000	24
Under 20 years	127,000	9

In short the Legislative Council and the Malayan public were told, to use the Committee's own words, that "the alternative to large scale replanting with

3. For the full text of the Interim Report, see Federal Legislative Council, "Minutes And Council Papers Of The Federal Legislative Council, (Third Session) February, 1950 to January, 1951," *Interim Report of the Rubber Smallholdings Enquiry Committee,* (Kuala Lumpur: Government Printer) pp. B 528-531.

4. The Mission consisted of the Chairman, Sir Francis Mudie, former Member of the Viceroy's Executive Council in India and, later, Head of the British Economic Mission to Yugoslavia, and two other members. They arrived in Malaya in June, 1954 and presented their Report in August, 1954. The Report was laid before the Legislative Council on 6th October as Legislative Council Paper No. 58 of 1954. The Mission's main terms of reference were the examination of the tax burden on the rubber industry and the maintenance of existing capital in the industry.

5. Rubber trees become tappable at the age of six or seven years. The latex yield of the trees increases with age until the trees are eighteen years old, and then declines. When trees are above thirty years old, it is generally considered that the yield is so low that the trees have to be replaced.

high yielding material is the virtual extinction of the smallholding industry as it is known to-day."[6] The same warning was later issued by the Mudie Mission: "If the present state of affairs is allowed to continue, and nothing is done to secure an adequate rate of replanting over the industry as a whole, the end of the rubber industry in Malaya, as we know it, is inevitable within the next fifteen or twenty years. It will just gradually sicken and die."[7]

The Final Report also gave some interesting data on replanting costs, which are reproduced below.

Average replanting cost per acre	
Destruction of old trees by felling	$200
Planting material	28
Manure	72
Labour at 100 man days	300
Total cost per acre	$600

The Committee, using the above replanting cost figures as a guide, recommended that the Government should provide "inducement money" of $500 per acre to smallholders for replanting the trees. The Committee also endorsed the Government's earlier action in imposing a special tax (Schedule II tax) with a view to building up sufficient funds to provide financial inducements for the voluntary rejuvenating of the rubber industry.

SCHEDULE II TAX

The outbreak of the Korean War gave a sudden and important boost to the rearmament race. Prices of strategic raw materials including rubber and tin skyrocketted. The rubber price increased from an average of 50 cents per pound in January, 1950 to more than 196 cents in October of the same year, an increase of 292%. Oscar Spencer, then Member for Economic Affairs, and previously member of the Smallholdings Enquiry Committee, became closely associated with the move to combat the inflation that developed in Malaya as a consequence. The Schedule II tax was introduced with effect from 1st January, 1951, together with changes in other export taxes,[8] as measures to combat inflation and build up a reserve fund for replanting purposes.

The Schedule II tax was on a sliding scale basis to be operative only when the price of rubber was above 60 cents per pound. The tax formula was (0.45P-27)/10, where P was the price of rubber in cents per pound. At 65 cents per pound, the tax would be 0.25 cents, at $1.00 per pound, 1.75 cents, and at $1.50 per pound, 4.00 cents. The obvious characteristic of this tax, therefore, was that the price of rubber was all important in the determination

6. For the full text of the Final Report, see Federal Legislative Council, "Minutes And Council Papers Of The Federal Legislative Council, (Fourth Session), February, 1951 to February, 1952," *Final Report Of The Rubber Smallholdings Enquiry Committee*, (Kuala Lumpur: Government Printer), pp. 680-687.

7. *Report of the Mission of Enquiry into the Rubber Industry, op. cit.*, p. 12.

8. For more information on the other export taxes, see Lim Chong Yah, *op. cit.*

of the tax yield. It is interesting to note that whereas the Enquiry Committee had observed complacently that the tax "made available very substantial funds to assist in the replanting of smallholders' rubber,"[9] the Mudie Mission had concluded that the tax collected was "too meagre"[10] and consequently recommended its replacement by a more adequate tax. The explanation is that the Mission came at a time when the rubber price was relatively low (the 1954 average price was 67.30 cents per pound), whereas the Enquiry Committee worked under boom conditions (the 1951 average price was 169.55 cents). The effect of this price change on the tax yield was enormous. In 1951 the Schedule II tax yielded about $50m while in 1954 the yield was only $5m. Neither report, however, made any specific reference to the all important price factor in its observations.

SCHEDULE IV TAX

On the same day as when the Final Report of the Smallholdings Enquiry Committee was tabled before the Federal Legislative Council, in January 1952, the Government also presented to the Council a new Customs Order for the imposing of a tax of 4½ cents per pound on all rubber exported when the gazetted price of rubber was more than 75 cents per pound as an additional measure to provide "inducement money" for replanting. This tax, however, was to be returned to the estate sector unconditionally on the submission of acceptable production data. It was, therefore, in effect an additional smallholders' replanting tax, and the estates were brought in only for administrative reasons. It would be administratively very difficult, if not impossible, to tax smallholders' rubber production alone through the export tax mechanism. The Government's original intention to extend this tax to the estate sector was dropped on account of the strong opposition from estate interests, and the tax thus remained a smallholders' tax.

In September 1952, because of the fear that the rubber price might fall below 75 cents per pound, and because the Government had by then become convinced that the replanting programme in the smallholding sector should be pushed ahead at all cost, the Schedule IV tax was made operative irrespective of the rubber price. Thus the Schedule IV tax became in two ways basically similar to the export taxes proper imposed in 1946 and 1947. These were specific taxes and were operative irrespective of price. But the 1946 specific tax was only 0.4 cents per pound, and the 1947 specific tax only 2.5 cents; furthermore they were the only taxes in existence in those years, and the 1946 0.4 cents tax in fact proved to be onerous when the rubber price was low. Although the rubber price level had risen since then, in 1952 there were in existence not only the export tax proper but also the Schedule II and the Schedule IV tax. Further, a research cess of 0.25 cents per pound in 1946 had risen to 0.50 cents in 1952.[11]

9. *Final Report Of The Smallholdings Enquiry Committee, op. cit.*, p. B 680.

10. *Report Of the Mission Of Enquiry Into The Rubber Industry Of Malaya,* Kuala Lumpur: Government Printer, 1954, p.v.

11. The rubber export taxes in 1953 consisted of Schedule I duty, and Schedules II, III and IV cess. For the rates of Schedule I duty and Schedules II and III cess at various rubber price levels, see the table in Appendix A, Lim Chong Yah, *op. cit.*, p. 56. The Schedule IV cess in 1953 was at a flat rate of 4.5 cents per pound.

FUND A AND FUND B

At the time when the Schedule II tax was imposed, the Government did not appear to have any clearly defined plans on the administration of the funds collected. The boom conditions had called for an early imposition of the tax. Should there be any regret, it would not be that the Schedule II tax was prematurely introduced, but that it was not imposed earlier, say, in June 1950, when the rubber price had already taken an important upward trend, and it was clear that it would continue to increase, in view of the big rearmament programmes undertaken at that time.

In March 1952, the Rubber Industry (Replanting) Fund legislation was passed by the Legislative Council, and this came into force in May 1952. This Ordinance provided for the setting up of two funds, Fund A for estates and Fund B for smallholdings. The replanting taxes would be paid into these two Funds according to monthly estate and smallholding production figures. Estate production data were available, and by deducting estate production from total export figures (not including re-exports), smallholders' production estimates were obtained. Roughly smallholders' production came to about 40% and estate production 60% of total Malayan production of natural rubber.[12]

The Fund A Schedule IV tax was unconditionally refunded to the estates. The Fund A Schedule II tax was refunded only against approved expenditure on replanting. Since the Fund A Schedule IV tax was unconditionally repaid, strictly speaking, this was not a tax. This arrangement only cost the estate owners inconvenience and delay in the utilization of their own funds. As for the Fund A Schedule II tax, it is obvious that there was a certain compulsion in the utilization of the estates' funds, since the money would not be refunded unless proof of expenditure on replanting was shown.

In the case of smallholdings, both the Schedule II and IV taxes were paid into Fund B. The participants of Fund B did not obtain any financial repayment unless they replanted. The replanting grant from Fund B was originally fixed at $400 per acre; this was raised to $500 in November 1954, with retrospective effect from 1st January 1953. To those smallholders who, for various reasons, did not undertake replanting, the Schedules II and IV levies were in no way basically different from the ordinary export taxes. An examination of the replanting schemes so far undertaken shows that smallholders who had not taken advantage of this grant were considerably larger in number than those who had benefitted from the grant. Although we have no reliable estimates of the number of smallholders in the Federation, it is believed that in 1952, there were about 400,000 smallholdings, of which only 77,000 had received

12. For the purpose of allocating money between Fund A and Fund B, an estate is defined as any land, planted with rubber, whose size is 100 acres and above, and a smallholding is land that is less than 100 acres in size. This is the usual distinction made between an estate and a smallholding, but it is not always followed. For example, the Smallholdings Enquiry Committee at first adopted the definition of a smallholding as "an area of 25 acres or less". See *Interim Report Of The Rubber Smallholdings Enquiry Committee, op. cit.*, p. B. 528.

financial aid from Fund B during the life span of Scheme 2, the replanting programme for smallholders, from 1953 to the end of 1959.[13]

THE $280 MILLION SUBSIDY

The Mudie Mission recommended in 1954 the abolition of the Schedule II tax, and the extension of the Schedule IV tax to cover the estate sector to finance replanting. It also recommended the abolition of the export tax proper when the price of rubber was 60 cents per pound and less. After prolonged discussion with the Rubber Producers' Council, the Government issued a White Paper outlining its policy on the matter. It accepted the Mission's recommendation for the abolition of the Schedule II tax, but partly because of strong objections by estate interests and partly because it considered that the disadvantages would far outweigh the advantages, the Government did not accept the Mission's recommendation for the extension of the Schedule IV tax to cover the estate sector. It decided instead to make an outright grant of $280m to assist the rubber industry to new-plant and replant rubber trees.

This large subsidy was received with mixed reception. The records of events at that time show conclusively that there was some confusion and much misunderstanding regarding the $280m subsidy. The Trade Union Council announced their strong opposition to the scheme, believing that it was calculated to divert public funds to estate interests and since most of the large estates were in British hands, it was also charged that this was another subtle form of colonial exploitation. A prominent member of the Legislative Council, on the other hand, expressed the strange view that the British Government had repented somewhat by returning a slice of what it had exploited from Malaya during the British Military Administration period, when price and export control was carried out by the local administration under the direction of the metropolitan country.[14]

The $280m grant was in fact made in exchange for an increase in export tax (Schedule I tax) rates when the price of rubber was above 80 cents per pound. Should the price remained at 80 cents per pound, the $280m subsidy would be borne by general revenue. Should the price fall below 80 cents, the subsidy would amount to more than $280m since the Government, as an integral part of the subsidy measure, had also brought about the reduction of the export tax rates when the price of rubber was below 80 cents per pound. Assuming a price of 50 cents and an annual production of 575,000 tons, the Government would suffer a loss in revenue of about $8m per annum. If the price were $1.00 per pound, the Government would benefit by an additional $40m per annum, and it would take seven years for the Government to recover the $280m

13. For statistical information on smallholdings in 1952, see The Rubber Industry (Replanting) Board Scheme No. 2 for The Administration Of Fund B, *Report On Operations For The Year 1959 By The Chief Replanting Officer,* (Kuala Lumpur: The Caxton Press (1957) Ltd., 1960), p. 27. For information on smallholdings that had been replanted with financial assistance by the State see *Ibid,* p. 50. For various aspects of Scheme No. 2 see *Ibid,* pp. 1 to 63 and also the *Report On Operations By The Chief Replanting Officer for the Period 1st November, 1952 to 31st December, 1953, op cit.,* pp. 1-58.

14. For the very interesting debate on this subject in the Legislative Council, see Federation of Malaya, *Report of the Proceedings of the Legislative Council, Wednesday and Thursday, 4th and 5th May, 1955,* (Kuala Lumpur: Government Printer), columns 309-335 and 345-404.

subsidy. Since the subsidy is to be spread over a period of eleven years from 1955 to 1965, the Government would recover the full subsidy by the end of 1965, provided the rubber price remains slightly above 90 cents per pound during the period. The average rubber price for the period 1955 to 1960 was slightly more than 98 cents per pound and by the end of 1960, a very substantial proportion of the subsidy, perhaps as much as $230m had already been recovered.[15]

With regards to the subsidy, it will be noted that the Government had in fact made a very bold decision. There can be little doubt about the wisdom of this move, as evidenced by the achievements of the replanting programme since 1955.[16] But it must also be remembered that the export tax machinery made the collection of funds through this method less painful and more practical than perhaps any other conceivable method. That many rubber smallholders could not believe the Government would be so generous in providing financial aid[17] has also helped to bolster up their confidence in the Government and the future of the rubber industry.

SOME ABUSES OF FUND B

Under Fund B, a smallholder was subsidized at a uniform rate of $400 for each acre under replanting. This subsidy was raised to $500 in 1954 and subsequently to $600. Smallholders could only be entitled to replanting grants of not more than 21% of their total planted acreage, but there was no limitation if the total replanted acreage did not exceed five acres.

The $280m grant was administered by a separate group of officials under the general aegis of the Rubber Industry (Replanting) Board. Various schemes have been started for the utilization of the $280m, of which $168m was intended for estates, and the balance of $112m for smallholdings. How the exact amount of $280m was arrived at is given in Table I below, which also shows how the funds were intended to be utilized. For the estate sector, the replanting grant was $400 per acre, and the maximum replanting grant eligibility was 21% of the total registered acreage on 31st December, 1954. For the smallholding sector, part of the money has been used to increase the Fund B grant from $500 to $600 per acre. The balance is put to other uses.

Abuses have often been encountered in the operation of the scheme, since the grant for estates was only $400 per acre, whereas a grant of $600 could be obtained under Fund B. The contributors to Fund B, as a group, had received much less than what they should have received, or in other words, they should have been required to contribute less for what they had in fact received, on account of the misuse of Fund B money.

15. The comparative tax yields from the pre-Mudie tax rates and the 1955 Government rates are given in the table in Appendix C, Lim Chong Yah, *op. cit.*, p. 58.

16. The Second Five Year Plan describes rubber replanting as "perhaps the outstanding economic achievement of the last five years." See Federation of Malaya, *Second Five-Year Plan*, 1961-1965, (Kuala Lumpur: Government Printer, 1961), p. 2. For more information on this, see also The Rubber Industry (Replanting) Scheme For Estates, *Annual Report For The Year Ended 31st December, 1959*, and *Report On Operations For The Year 1959 By the Chief Planting Officer*.

17. See *Report On Operations For The Year 1959 By the Chief Replanting Officer*, *op. cit.*, p. 7.

TABLE I. ESTIMATION OF THE GOVERNMENT $280 MILLION REPLANTING GRANT

Year	Replanting of 3% of total acreage per year			Replanting of maximum of 5% of total acreage per year		
	Areas to be replanted	Annual cost to Government	Cumulative cost	Areas to be replanted	Annual cost to Government	Cumulative cost
		($ Mn)	($ Mn)		($ Mn)	($ Mn)
1955	60,000	9.0	9.0	100,000	15.0	15.0
1956	60,000	15.0	24.0	100,000	25.0	40.0
1957	60,000	18.0	42.0	100,000	30.0	70.0
1958	60,000	21.0	63.0	100,000	35.0	105.0
1959	60,000	24.0	87.0	20,000	28.0	133.0
1960	—	24.0	111.0	—	17.0	150.0
1961	—	24.0	135.0	—	11.0	161.0
1962	—	15.0	150.0	—	6.0	167.0
1963	—	9.0	159.0	—	1.0	168.0
1964	—	6.0	165.0	—	—	—
1965	—	3.0	168.0	—	—	—
Total	300,000	$168.0	$168.0	420,000	$168.0	$168.0

Notes: (a) The above table refers to the estate sector only. The Government will pay a grant of $400 per acre for replanting in the following instalments: 1st year, $150; 2nd year, $100; 3rd year, $50; 4th year, $50; and 5th year, $50.

(b) Two-thirds of the grant to estates are to be given to smallholders. This works out to $112m. The total grant, therefore, is $280m.

An example of abuse

An estate may be owned by more than one person. If the estate is treated as a single entity, the estate owners as a group can obtain only $400 grant per acre up to a maximum of 21% of the total acreage. Assuming some estate owners own jointly one thousand acres, then under the Government scheme for estates, they would be entitled to a total maximum replanting grant of $84,000 ($400 x 210), but if they break up the estate into smallholdings, their entitlement would be $126,000 ($600 x 210). The administration of the estate need not be altered. If they divide the estate into plots of five acres each, and place each five acre holding under a different nominal ownership, each would be entitled to a grant of $600 per acre for the whole five acres, and the total grant entitlement would be $600,000 ($600 x 1000), which is many times larger than the $84,000 entitlement under the estate grant scheme. This type of loophole has long been held by the writer as one of the fundamental causes of the subdivision of estate land that has taken place in Malaya since 1955.[18]

18. For more information on the subdivision of estates see Ungku Aziz, "Land Disintegration and Land Policy in Malaya", *Malayan Economic Review*, Vol. III, No. 1, April, 1958, pp. 22-29. The Government has set up another Committee to look into the question of estate subdivision. At the time of writing the Committee has just submitted its Interim Report to the Government.

The most recent report (the 1959 Report) of the Rubber Industry (Replanting) Board for the administration of Fund B states, however, that

"The matter of fragmentation of estates has been the subject of much publicity during the year, so much so that a committee has been appointed by the Government to study and examine the question from all angles. Those against fragmentation are chiefly concerned with the displacement of settled labour and fail to see the advantages which can arise from fragmentation. The majority of the Estates fragmented and with which the officers of the Rubber Industry (Replanting) Board come in contact, consist of areas of old rubber which are in need of replanting. What better use could these lands be put to than that they be fragmented and sold to landless people who are prepared to replant them with the assistance of the Replanting Board. The majority of the buyers of fragmented rubber lands seeking admission to the Replanting Scheme are Chinese smallholders, Chinese tappers or estate labourers. Finding it difficult to obtain land through Land Officers they are prepared to pay a reasonable price for old rubber land, fell, clear and replant with high yielding planting material, knowing full well that they will be eligible to participate in the Smallholders Replanting Scheme."

Insofar as it is true that the subdivided land is now owned by formerly "landless people", the social, political and economic significance would be different than if it were now owned by absentee landlords. If the land were owned by the landless group, the criticism can still be made that they have directly benefitted from the contributions of others to Fund B and the Government fund for smallholders. But if the subdivided land were to belong to absentee landlords the charge would be more serious. Money from the smallholders, many of whom are very poor, would have been diverted through the Government tax mechanism and the replanting schemes to the subsidization of these absentee landlords. The estate subdivision operators usually buy up old estates and subdivide them into five acres each in order to take full advantage of the Fund B grant, and later these plots might be sold at a large profit. These operators, of course, have to register the ownership of the land initially in others' names, often those of their own rubber tappers, other employees or unemployed persons, who are prepared to allow their names to be thus utilized for a "handful of dollars". In a recent visit to the Land Office in Selangor, of the three files on estate subdivision shown to the writer, two files revealed rubber estates subdivided into 5 acres each and the remaining file showed estates subdivided into 20 acres each. From an inspection of the names of the new owners, it was obvious that they not only belonged to the same race and the same dialect group but many have the same surname and family name. In short, these were the trusted tools of enterprising men with capital who propose to make their fortunes behind the apparently innocent transactions.

A further example of abuse

The Government grant of $112m is further depleted through the transfer of money under the Rubber Industry (Smallholders New Planting) Scheme (No. 1), which was initiated in 1957 with the blessing of the Government. Under this scheme each new smallholding would be paid $400 per acre. But many of the new owners were not rubber smallholders. Why must smallholders be made to subsidize the creation of new smallholders? The grant could conceivably be derived from some other source, say, out of the $168m subsidy

for estates. If the Malayan smallholders are fairly well off, then this is not a serious issue. But, to use the very words of the Mudie Mission, "most rubber smallholders are poor."[19] They have in fact been further impoverished by the heavier export tax burden. There is some evidence that the majority of them normally earn less than $100 per month. Table II below shows the occupational origin of the new smallholders at the first resettlement scheme sponsored by the Federal Land Development Authority — the Tanah Merah Land Development Scheme at Ayer Lanas in Kelantan. This project has received the $400 per acre grant from the Government smallholders' subsidy fund through the Rubber Industry (Smallholders New Planting) Scheme (No. 1) referred to above.

TABLE II. OCCUPATIONAL ORIGIN OF AYER LANAS SETTLERS

Occupations	*Families*	*Per cent*
Genuine padi planters	205	51.3
Ex-military personnel	46	11.5
Carpenters	30	7.5
Rubber tappers	28	7.0
Odd job labourers	25	6.3
Businessmen	16	4.0
Trishaw riders	16	4.0
Fishermen	10	2.5
Ex-prisoners	9	6.0
Copra manufacturers	5	
Masons	4	
Batik makers	2	
Police supervisors	2	
Barbers	1	
Religious teachers	1	
Total	400	100.0

Source: State of Kelantan, The Tanah Merah Land Development Board, *Annual Report Of The Land Development Project At Ayer Lanas, 1957 - 1958,* (Kuala Lumpur: Charles Grenier & Co., Ltd), p. 16.

It should be pointed out, lest it is misunderstood, that the above discussion is not intended to mean Government should not grant financial assistance to the new settlers. The argument is that the source of finance should not come from smallholders who are so urgently in need of financial assistance themselves. If land is to be opened up, other sources of finance will have to be sought, and smallholders should not be made to shoulder this burden out of taxes paid on the understanding that the funds would be used to finance their own replanting work. This charge is particularly serious in view of the oft-repeated promise of the Government, as an urgent issue, to raise the standards of living of the rural people, who consist mainly of rice farmers and rubber smallholders.

19. *Report Of The Mission of Enquiry Into The Rubber Industry of Malaya, op. cit.,* p. 35.

THE MECHANISATION OF AGRICULTURAL SMALLHOLDINGS IN UNDERDEVELOPED AREAS*

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The mechanisation of small agricultural holdings in many underdeveloped countries has made little progress in recent years. This has been partly due to the acceptance by planners of the view that the tractor is primarily a labour saving device, and that as such it is out of place in an agricultural situation where under-employment, disguised unemployment and over-population are major problems.

In this paper the general application of that view is questioned, and a case is made out for the selective mechanisation of smallholdings, even in areas of serious over-population, where mechanisation can be shown to have important advantages other than the economy of labour.

The term smallholding is used to cover a very wide range of farm sizes in different contexts and in different countries. However, in many underdeveloped countries, particularly in South and East Asia, the average size of farm in the over-populated regions is very small. In Malaya, for example, the vast majority of rubber and coconut farms owned and operated by the indigenous people are from three to six acres in extent, whilst the average rice farm is of the order of three acres.[1]

In this paper the term smallholding is taken to refer specifically to those very small farms that are typical of the indigenous agriculture in the over-populated rural areas of South and East Asia.

CHARACTERISTIC PROBLEMS OF SMALLHOLDINGS

There are a number of problems that are characteristic of agricultural smallholdings in most underdeveloped countries of the region, and indeed, at least to some extent, in many underdeveloped countries in Oceania and other parts of the world. Those that are particularly relevant to the question of mechanisation include the following:

(i) Small size of the individual farms;

(ii) Low land/man ratio, either in absolute terms, or in effect, owing to the high capital cost of development of the waste land available;

* This article discusses primarily mechanisation by means of agricultural tractors and tractor powered implements, which are the most important and widely applicable forms of mechanisation in this context. However, the principles and criteria evolved are not confined to tractors, and are valid for judgements regarding other forms of capital intensive productive plant.

1. A survey of the Krian Irrigation area, undertaken in 1954 revealed that the average plot operated as a holding in this major padi area was 3.07 acres. See T.B. Wilson, *The Economics of Padi Production in North Malaya, Part I*, (Kuala Lumpur: Department of Agriculture, 1958), Table 83, p. 92.

(iii) SHORTAGE OF CAPITAL resources available to the small farmer;

(iv) IMMOBILITY OF LABOUR, typified by strong social and economic rigidities that make it difficult for surplus rural labour to be absorbed into urban industry even when such employment opportunities are available;

(v) UNDER-EMPLOYMENT AND DISGUISED UNEMPLOYMENT deriving from the over-crowding of the available cultivated land; and

(vi) INCREASING POPULATION PRESSURE which tends to augment the seriousness of the above problems from year to year.

It is also typical of many underdeveloped countries of the region that determined efforts are being made to expand employment opportunities for the surplus labour through the opening up of waste land, through the improvement of areas already under cultivation and through the development of manufacturing and processing industries. However, generally speaking, the scale of such efforts is not yet adequate to take care of the annual increase in the working population, let alone to relieve existing over-crowding. There is, therefore, no indication that the present situation of the smallholder population will be substantially improved by these measures alone in the relatively short term, and the existence of serious under-employment in most smallholding areas must be expected to remain a problem for many years to come.

From Persia to the Philippines, and from Korea to Indonesia, there are, of course, wide divergencies in the types of farming and in the circumstances of farming on smallholdings. This paper is largely based on experience with smallholdings in North West Malaya,[2] where there are, of course, distinctive features not exactly duplicated on a wide scale elsewhere. However, the same criticism could be applied in differing degrees to experience with any other groups of smallholdings in underdeveloped countries of the region. A form of technological change that would be practicable and valuable for the paddy farmer of the lower Tongkin Delta, would not necessarily be so for the rubber farmer of Malaya, or the cotton farmer of Pakistan.

On the other hand, behind this diversity, there lie economic and social patterns that are qualitatively similar over a very large proportion of the agricultural smallholdings of the region. This applies not only to the economic and demographic factors listed above, but also to organisational and agricultural factors, such as the advantages of being able to plough without having to wait for rain to soften the ground, and social factors such as the existence of an extended family or other such social institution that assures most of the population some share in the produce of the land despite the superfluity of their labour for much of the year. The import of these factors will be discussed in more detail later in the paper.

2. From 1951 to 1957 the writer served as State Development Officer, Perak, Malaya, and was directly concerned with the planning and implementation of a mechanisation programme for smallholdings in that State.

THE CASE AGAINST MECHANISATION

The case against mechanisation of smallholdings in the over-populated areas of South and East Asia has been argued by many economists in recent years.[3] It is a fact that where the six typical problems listed above exist in a smallholding area, the scarce factors of production are land and capital, whilst labour is super-abundant. The marginal productivity of labour is low, even negative. The off-take of surplus labour into other employment is inadequate, and population growth is rapidly adding to the surplus. Under these circumstances, what planners are seeking most urgently tends to be a solution to the problem of unemployment and under-employment, rather than a means of economising in labour.

Moreover, these problems tend to detract from the value of mechanisation as a means of economising in labour costs. Generally speaking, tractors are less efficient, in terms of output per operating hour, on small lots than large, and therefore less economical. They are capital intensive rather than labour intensive, thus economising in the factor that is most plentiful at the expense of a factor that is scarce. The cost to the peasant farmer of the labour the tractors replace is very low, and as will be seen, may even be nil.

It is in this context that Dr. Sen, of the Indian Ministry of Food and Agriculture, makes his most cogent point against a policy of deliberate mechanisation. He says, "While mechanisation of farming operations improves considerably the yield per unit of labour, it does not necessarily increase the yield per unit of land".[4] In view of this, it is argued that, until the problem of rural unemployment and under-employment is solved, the introduction of technological change that would economise in labour is unwarranted and undesirable.

There is considerable force to this argument.

There is, of course, also a classical reply to this type of argument, that resistance to, or even failure to encourage, innovation and technological change, is in the long view a retrogressive step. A substantial transfer of labour from agricultural to urban industrial employment is an essential part of the development process. The frictions and rigidities which tend to prevent this flow must eventually be overcome. Unemployment, and the distress deriving therefrom, provides a powerful incentive to mobility, and at the same time, by lowering the minimum acceptable wage in alternative employment, tends to stimulate the growth of industry by lowering its costs. On these grounds, it can be argued that the government of an underdeveloped country should regard technological unemployment, whether in the rural areas or elsewhere, as a necessary part of the cost of rapid transition to a condition of sustained growth — and indeed as a cost that it will be cheaper to meet soon than late.

However, whatever the theoretical merits or demerits of such a line of argument, it can have little practical application for the democratic government of an underdeveloped country. Very few elected governments would be in-

3. For example, see S. R. Sen, *The meaning of technical change in the context of the agricultural economy of different environments — Asia*, and discussion on that paper, in the Proceedings of the Ninth International Conference of Agricultural Economists, pp. 49-59, Oxford University Press, 1956.

4. S. R. Sen, *op. cit.* p. 56.

clined, or able, to face the political consequences of such a policy; for whatever the long run effects of the policy, the short run effect on the feelings of the electorate would normally be sufficient to ensure that the proponents of the policy did not have political power for a sufficient time to prove their point. Therefore, for the purposes of this paper, it will be taken as a political axiom that technological change in agriculture would be undesirable if it deprives a substantial proportion of the rural population of their livelihood and leaves them without any immediate acceptable alternative. In other words, increased productivity per unit of employed labour will not be accepted as justification for mechanisation if its only immediate effect is an economy of labour.

THE CASE FOR SELECTIVE MECHANISATION

This, however, does not mean a total acceptance of the case against mechanisation argued by Dr. Sen and others. That case is an over-simplification. If carried to extremes, the same argument could be used to justify banning the use of animal power, or any other labour saving device, until all available labour is fully employed. In some cases, where rural under-employment is particularly serious, it might even be used to justify the banning of the use of metal, and insistence on the return to stone and wooden implements.

However, few people would go so far as to say (to paraphrase Dr. Sen) "While the substitution of a metal bladed hoe for a digging stick improves considerably the yield per unit of labour, it does not *necessarily* increase the yield per unit of land". Logically defensible though such a statement might be, most people would agree that, in practice, such a substitution would in many cases increase the yield per unit of land, and that it may also make possible the cultivation of land that would be uncultivable, or uneconomic, otherwise.

Similarly, although mechanisation in agriculture does not necessarily have any advantage other than economy of labour, there are in fact many instances where it does. It can in many cases increase total productivity by more effective, more timely, or more rapid cultivation — thereby increasing the yield per unit of land — or by enabling the effective cultivation of marginal land that would be uncultivable by other methods — thereby increasing the number of effective units of cultivated land.

The case for selective mechanisation of smallholdings is, therefore, that mechanisation should be deliberately encouraged, even in areas of serious rural under-employment, wherever its use will enable an increase in total agricultural productivity, provided only that it does not deprive a substantial proportion of the rural population of their livelihood.

OVERT AND DISGUISED UNEMPLOYMENT

We have accepted the premise that mechanisation is undesirable where its only effect is an economy of labour. We could also accept the premise that mechanisation would be desirable where its only effect was to increase productivity. However, such simple cases seldom occur in practice, and so far as employment is concerned, mechanisation will nearly always have some effect in one direction or another, as for example:

(i) Where mechanisation increases productivity by enabling the cultivation of land that would not otherwise be cultivated, it will clearly also lead to an increase in the demand for labour.

(ii) Where the rapidity of mechanical cultivation is used to enable double or treble cropping of land that would be cultivated only once or twice by hand, the effect on the demand for labour may be partly positive — by increasing the requirements for planting, weeding, harvesting and processing of the crop — and partly negative — by decreasing the demand for labour in the tilling of the soil. It will tend to decrease seasonal unemployment, but may also decrease the total demand for labour at certain peak periods.

(iii) Where mechanisation is used to increase production by enabling more efficient cultivation than would be possible by hand or buffalo implements, the effect on the demand for labour will be predominantly negative.

The question is, therefore, whether a policy of encouraging selective mechanisation should be confined to instances where the increase in productivity is accompanied by a net increase, or at least no decrease, in the demand for rural labour, or whether it should also include those instances where the increase in productivity may be accompanied by a net decrease in the demand for rural labour.

The answer to this question will depend, on whether a reduction in the demand for labour, accompanied by a rise in total production, will lead to the deprivation of a substantial proportion of the rural population of their livelihood. In urban industry, and even in agriculture in a developed economy, a reduction in the demand for labour will normally have such a result. Although there are exceptions, as when the reduction is effected by reducing working hours, nevertheless, the normal immediate effect of such a reduction in the demand for urban labour will be an increase in *overt unemployment*, and the sector of the working force so affected will suddenly find themselves deprived of their means of livelihood.

This may also happen in the agricultural sector of an underdeveloped economy, but in many such countries such consequences will be relatively rare. In a considerable proportion of the smallholding areas of South and East Asia, a reduction in the demand for labour will produce little overt unemployment, but will rather be absorbed by an increase in *disguised unemployment* or *under-employment* of family labour.

In many of these areas, the social and economic institutions are such that there is no regular shortage of labour on individual farms, and little regular employment of paid workers. On the contrary, the majority of farmers will have a surplus of family labour available on their farms for most of the year, often augmented by distant relations to whom he has obligations under an extended family system of some kind.

In these cases, the farmer is obliged to provide shelter and subsistence for his labour supply whether they work or not, and what matters to the farm population is not the lack of full employment for the available labour, but merely the deficiency of income (or production) to provide for their sustenance. In other words, what determines the standard of living of the farm population is not the degree of under-employment or disguised unemployment, but simply the total productivity of the farm. In such cases the introduction of technological change will be of benefit to all concerned provided only that it increases total farm production, irrespective of its effect on the demand for labour and the degree of under-employment in the area.

A CASE STUDY IN PERAK STATE

The assessment that selective mechanisation of certain processes in a given area is intrinsically desirable is, of course, not the end of the matter. Mechanisation must also be practicable. This involves consideration of capital costs and resources, operating costs, organisation, methods of introduction and other matters, which it is not possible to deal with in detail in this paper.

However, brief mention of an example where selective mechanisation of smallholdings was successfully planned and executed may prove of some interest. It is not claimed that this is a typical example, for there can hardly be such a thing under so wide a range of conditions as prevail in the region, but it will serve to illustrate some of the possibilities.

In Malaya in 1952, the Rural and Industrial Development Authority,[5] on the advice of the Department of Agriculture, and with the active assistance of that department, undertook the introduction of mechanisation on a selective basis to the smallholders of the State of Perak.[6] At that time, although mechanisation had been introduced to some of the larger rubber and coconut estates, it was virtually unknown to smallholders.

A plan was drawn up of which the principal features were as follows:

(i) Selection of smallholding areas where mechanisation would be desirable, largely on the basis outlined in this paper;

(ii) Demonstrations by the Agricultural Department of recommended techniques in those areas;

(iii) Temporary provision, by the Rural and Industrial Authority, of a Government owned and operated tractor hire service in the areas for two or three years, the price of hire being set at a figure just above what it was calculated a private operator could charge and make a reasonable profit;

(iv) Setting up a school of mechanical cultivation for training smallholders and small contractors in tractor operation and maintenance prior to their owning their own tractors;

(v) Credit facilities for supplying tractors and implements to smallholders and small contractors on hire purchase terms;

(vi) Withdrawal of the Government owned tractor hire service by stages from area to area as privately owned tractors became available to fulfil the demand;

(vii) Provision of an inspection and maintenance service for privately owned tractors until local garages and workshops were equipped to provide the necessary spare parts and service; and

(viii) The provision of a Government owned and operated pool of heavy crawler tractors for the initial preparation of new and rough land on contract, to make it suitable for cultivation by the lighter privately owned tractors in subsequent years.

5. The Rural and Industrial Development Authority is a corporation, set up and financed by the Government of the Federation of Malaya to promote economic and social development measures in the rural areas.

6. Perak is the largest State, in terms of population, in the Federation of Malaya. It has a population of 1,221,390 (1957 Census) and an area of 7,980 square miles. Its principal agricultural products are rubber, copra, rice, tapioca, tobacco, vegetables and fruits.

This plan was implemented stage by stage, commencing in February 1952. By the end of 1953, the Authority was operating approximately 50 tractors in the State of Perak. Most of these were light wheeled tractors (Fergusons) of the type considered most suitable for ownership and operation by smallholders in the State. By the end of 1958 there were several hundred privately owned wheeled tractors of this and similar types operating on smallholdings in Perak, and the Authority had sold off all of its wheeled tractors except four retained for training purposes. By that time, it was estimated that practically every smallholder in Perak, to whom mechanisation would be advantageous, could have his land ploughed by a privately owned tractor on contract at reasonable rates of hire. In most of these areas, one or two smallholders had bought a tractor for use on their own land, and on hire to their neighbours, and these were supplemented by tractors owned by small contractors, who plied from area to area as demand shifted with seasonal requirements of different areas and crops. The effect of this on agricultural output was considerable, particularly in relation to the replanting and new planting of rubber, and the taking of catch crops off such land. One district, the Dindings, which had been a substantial importer of vegetables and root crops for many years, became within three years a substantial exporter of both.

The cost of this programme was not great. In terms of public expenditure, there was a capital investment of about £75,000 sterling in plant and equipment, but the vast majority of this was recouped in the hire and resale charges over the six year period. The operating expenses of all the services, except the school of mechanical cultivation, were also covered by the hire charges, and the net cost to the government of the whole programme was small in relation to the results achieved. The rapid growth and the continuation of the privately owned hire tractors is in itself sufficient evidence that their basis of operation is not only financially possible, but sound.

CONCLUSION

The view that mechanisation of agricultural smallholdings in South and East Asia is neither warranted nor desirable, until the problem of absorbing surplus rural labour into other employment has been solved, is an over-simplification. It is valid only in cases where:

(a) The *only* advantage of mechanisation would be in economy of labour (as, for example, mechanical harvesting of certain crops), and

(b) An excess supply of labour over demand is manifested in overt unemployment rather than in disguised unemployment or under-employment.

In all other cases, and these may well be in the majority, the possibility of selective mechanisation of smallholdings merits the most careful consideration.

Wide generalisations about the merits or otherwise of particular types of mechanisation in the region, or even in extensive areas of the region, are of little value. The problems will vary with the type of crop, size of smallholding, soil fertility, social and economic conditions, and many other factors. The value of mechanisation can only be adequately assessed for relatively small groups of smallholdings where the individual holdings display a reasonable degree of homogeneity.

On the other hand, the scope for improvement of total agricultural production, by the selective mechanisation of specific agricultural processes in specific areas, is immense. This is not the place to discuss the technical possibilities in detail, but any agricultural engineer with experience of the region will be able to indicate areas where the mechanisation of certain processes would provide a potential for greater productivity, whether by improving the effectiveness of cultivation, by enabling ploughing to take place before the ground is softened by rain when the rains are late, by enabling the more intensive cultivation of difficult marginal ground, or by any of the other numerous possibilities suited to individual areas. What is required is that smallholding areas of the region should be examined area by area, and the potential advantages of mechanisation, other than the pure labour saving aspect, assessed for each area.

To this end, the first step must be the elimination of smallholding areas to which mechanisation will for the time being be of no advantage. This can be done by considering the smallholdings in groups or areas that display a certain degree of homogeneity, and applying the following three criteria:

(i) Will mechanisation of any specific agricultural process in the area concerned enable a net increase of agricultural production? If so,

(ii) Will the mechanisation of those processes decrease the total demand for labour in the area? If so,

(iii) Will the decrease in demand for labour be absorbed as disguised unemployment and under-employment, rather than as overt unemployment?

Then, in each area to which either:

(a) The answer to question (i) is "Yes" and to question (ii) is "No", or

(b) The answer to all three questions is "Yes",

there will be a *prima facie* case for considering the selective mechanisation of certain processes in that area.

This of course is only a first step. These criteria do not enable one to judge whether in fact mechanisation should be introduced in those areas. Such a decision can only be reached after consideration of the problems facing the economy as a whole. It may well be, for example, that even the relatively modest capital requirements of such a programme are beyond the capacity of the economy, or its rural sector, to support. Alternatively, the economy may be better served by the investment of such capital as is available in secondary industry, or in the provision of access roads to open up new areas of potential agricultural land. These matters cannot be pre-judged, and it would be absurd to suggest that a decision on whether or not to attempt the mechanisation of agricultural smallholdings should be taken without reference to the broad requirements of the economy as a whole. What can be said, however, is that the existence of underemployment in the smallholding areas is not itself a sufficient reason for rejecting mechanisation, and that by applying the criteria outlined above, the areas in which mechanisation merits serious consideration in planning the allocation of resources may be identified, and may be found to be substantial.

GOVERNMENT OWNERSHIP OF INDUSTRY IN ASIA

By Dan Usher*

This note is a brief descriptive study of public ownership of industry in several Asian countries. The discussion develops around a single table showing for each country the types of industries in the public sector and the relative importance of public as opposed to private ownership of industry. The countries included in the table are Burma, Ceylon, the Republic of China, Hong Kong, India, Federation of Malaya, Japan, Pakistan, the Philippines, Singapore and Thailand.

The paper begins with a discussion of how the table was constructed — the nature of the primary data and the assumptions involved in piecing them together. The latter part of the paper is an attempt to classify and explain the different patterns that seem to emerge. The description of the process of computation precedes the examination of the economic content of the table, because the data in the table are open to misinterpretation unless certain hazards in the estimating procedures are kept in mind.

THE CONSTRUCTION OF THE TABLE

The first problem in constructing the table is to decide what for our purpose shall constitute a government-owned industry. The choice is guided by three main considerations, which may overlap to some extent. As the objective is to show the differences among countries in the magnitude and kind of government penetration into the economy, we have excluded from the table activities which are normally in the public sector even in most countries considered to have a thoroughly capitalistic economic system. Left out, for example, are road building, irrigation and other public utilities which are rarely in the private sector. The term "industry" is almost restricted to the production of tangible goods, so that a state-run medical service or insurance scheme would not appear in the table. Finally we wish to distinguish in so far as this is possible between government control of industry and the welfare measures, that is, between government ownership of the means of production and direct services to individuals. This last ground excludes government-owned housing unless it is rented out at a level high enough to cover the full cost of construction and maintenance, and is not restricted to any class of needy people.

The industries included are shipping and shipbuilding[1], steel, minerals and mining (including salt), electrical equipment, chemicals and pharmaceuticals, petroleum products, wood and paper products, gunny bags, textiles and leather, building products (including cement), fertilizer, tobacco, sugar, processing and marketing of agricultural products not already specified, and development cor-

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1. Most transportation other than shipping was excluded because such transportation is often owned by municipalities for which data are not readily available, and because, even in the most capitalistic countries, transportation is often state-owned or so regulated as to pricing and output that it might as well be state-owned. We do not have data on the amount of government-owned trucking.

porations, put in as a separate category. These industries and a residual miscellaneous category are the headings of columns 1 to 16 in the table.

The second problem in constructing the table is to group industries under these categories. In practice the only way to do this is to use statistics of government-owned corporations and to class each corporation wholly within the industrial category where it appears to fit best. This method suffers from the defect that some corporations overlap two or more categories, like chemicals and fertilizers, and from the more serious fault that some industries are hidden within routine administrative departments, as some heavy industry is operated by the Indian railroads. These things cannot be disentangled without the use of more detailed statistics than are publicly available.

The third problem is to find a suitable measure of the size of government-owned corporations. The measure we have chosen is "net worth", the book value of the assets of the corporation net of all liabilities. This represents the depreciated value of the government's initial expenditure on the corporation plus the value of retained profits and subsequent equity investments by the government in the corporation.

Other measures were rejected for a variety of reasons. Current receipts and value added were rejected because they include payments to labour which vary with the capital intensity of the industry concerned; the size measure should be independent of this. Net profit is too variable and too susceptible to government policy. Profit rates are sometimes exceptionally high as in monopoly corporations, and sometimes very low as a form of subsidy to the public.

Net worth is not an ideal measure either. Like all measures of book value, it suffers from the defect that it reflects unexpired historical costs only and not current market values of the assets. Either the market value of the corporation as a going concern or the market value of its assets (less the market value of liabilities) would serve our purpose better, but neither of these statistics are available for any of the countries in the table.

It is difficult to decide what to do with loans. There is no clear case in a study like this either for including government loans or for leaving them out. The former procedure gives government expenditure on industry while the latter focuses attention directly on government ownership, with its implied control. We have chosen the latter course, but a larger study showing loans as well would also be interesting, though the data are often very hard to obtain.

In fact, not even net worth data are available for every country. For India and Pakistan "government contribution to assets" is used instead; this tends to exceed net worth by the amount of depreciation, but it does not include reinvestment by the corporation itself. Current expenditures, current receipts and total assets were used as the size measures for Burma, Japan and Thailand respectively, as these are the nearest available substitutes for net worth. The only data we have found for Ceylon is on authorized capital; we do not know whether all, or any, of this authorized capital is paid up. Most of the data is taken from budgets or accounts. The sources are indicated in the footnotes to the table. In the case of mixed public and private corporations, only the value of the government's share is included in the table.

The total value of the measure of government ownership, whichever it be, expressed in local currency is given in column 17. Columns 1 to 16 show the percentage of this figure originating in each of the sixteen industrial categories.

The index of government ownership (col. 21) is derived in the following way: each figure in column 17 is multiplied by a correction factor (col. 18) to make it comparable in size to net worth. Where the figure in column 17 is already net worth, the correction factor must be 1. The correction factor is also left at 1 for India, Pakistan and Ceylon, in the first two cases because the differences are small and could be in either direction, and in Ceylon because we have no idea what the correction factor ought to be. The correction factor is put at 1½ for Burma and Japan and at ½ for Thailand because of ratios that have been observed elsewhere between current revenue, current expenditure, total assets and net worth.[2]

The product of the size measure and the correction factor (col. 17 x col. 18) gives the imputed value of net worth (col. 19). A good index of the amount of government ownership of industry would be imputed net worth (col. 19) divided by the net worth of all corporations, publicly and privately owned. Unfortunately this latter statistic is rarely available so, instead, we fall back on net domestic product originating in mining, manufacturing and construction (col. 20). The index of the comparative magnitude of government ownership among countries (col. 21) is, therefore, imputed net worth (col. 19) divided by (col. 20), multiplied by 100.

The index of government ownership of industry is not a per cent, and its theoretical maximum need not be one hundred. The index would be a per cent if it were computed by dividing net worth of government corporations by total net worth of all corporations. But as the denominator used is value added in mining, manufacturing and construction instead of total net worth, the maximum of the index is larger. A rough indication of the size of this maximum can be obtained from a calculation based on American data. In 1957, the net worth of all active U.S. corporations was US$344.4 billion and the national income originating in mining, manufacturing and construction was US$138.9 billion;[3] net worth was 241% of value added in mining, manufacturing and construction. Applying this figure, we can then place the theoretical maximum of the index between 200 and 300. The industrialization index for India is 22; this implies that between 7 and 10 per cent of the net worth of Indian industry is owned by the government.

PATTERNS OF GOVERNMENT OWNERSHIP

The table seems to yield four main patterns of government ownership of industry. These may be called (a) the absence of government ownership, (b) government ownership for revenue, (c) government ownership of "basic" or "heavy" industry and (d) diversified government ownership.

2. The following ratios were observed for the corporations directly operated by the government of the Republic of China (under the jurisdiction of the MOEA only; see footnote (d) in the table): net worth is 43% of total assets, 128% of operating revenue and 163% of operating expenditure. Generalization on the basis of statistics such as these is almost unconscionably hazardous because the ratios vary widely from firm to firm, industry to industry, and from place to place. In recognition of this, we have fixed our correction factors at 50% intervals. It is set then at 0.5, 1.5 and 1.5 for Thailand, Burma and Japan respectively.

3. *Statistical Abstract of the United States, 1960*, pp. 488 and 308.

The first pattern — the absence of government ownership — is exemplified by Hong Kong, Malaya and Singapore. The *raison d'être* behind this is the belief that private industry will come to a country where there are opportunities to invest, where public services are amply provided and where the general climate of opinion is not hostile to private investment and profit-taking. Consequently, public revenue in these three countries is used solely to provide public services and for social welfare. Government activity designed to build up industry has been limited to providing extra incentives for private capital. Malaya has established a category of pioneer industries. These are mostly industries which have not as yet been introduced into Malaya. A firm wishing to enter one of these industries is given special privileges, such as tax concessions for a limited number of years.

The second pattern — government ownership for revenue — is exemplified by Japan. The entry under column 13 of the table represents a firm entitled *Japan Monopoly Corporation;* nine-tenths of its revenue is from its tobacco business and the other tenth from salt. Its privileges in the tobacco trade have made the monopoly corporation especially profitable, its current receipts being almost twice its current expenditure. In the late nineteenth century when Japan first began to import the technology of Europe, the government did set up and run steel mills, shipbuilding works and other businesses, but these have subsequently been sold off to the private sector. The government of Japan continues to make loans to private corporations.

India and Pakistan represent the third and fourth patterns respectively. The Indian *Industrial Policy Resolution* of April 1956[4] divides industry into three categories. In the first are "industries that are the exclusive responsibility of the state" because they are of strategic importance or because they "require investment on a scale which only the state could provide". This category includes military items, iron and steel, heavy electrical equipment, coal and lignite, and the mining of iron ore, manganese, chrome, gypsum, sulphur, gold and silver. A second category of industries is open to both public and private investment, and a third category is a residual of industries that are to be left exclusively in the private sector. The system was not to be applied rigidly; firms already engaged in industries in the first category were to be allowed to carry on with their business and to make provision for expansion.

The practice in India has followed the guide lines of the 1956 resolution. Steel absorbed 64 per cent[5] of total government expenditure on industry up to March 31, 1960, and another 25 per cent was devoted to shipbuilding, engineering, mining and electrical works.

The government of Pakistan has entered into a wide range of industries. The means has been the establishment of a holding company called the Pakistan Industrial Development Corporation (PIDC). The theory behind this corporation was that the primary need in Pakistan was not heavy industry but light industries specializing in the processing of local products; such industries had already been established in India for some time. The attitude toward private enterprise was

4. The statements quoted below are from this resolution, the text of which is included in the *Second Five Year Plan of India,* pp. 43-50.

5. This figure actually understates the share of steel in Indian public industrial investment; there are some very large loans outstanding from the Central government to the Hindustan Steel Corporation.

different in Pakistan from what it was in India. It was felt at the time the PIDC was established that the sort of entrepreneurial talent needed to open up new industries was lacking in the private sector and that it would be necessary to draw upon the reservoir of talent already in the civil service if the new firms were to be established at all. This was not envisaged as being antagonistic to private business for it was the avowed policy of the PIDC to sell off the firms it creates once they emerge as going concerns.

The industrial policies of India and Pakistan differ in two major respects. They differ in the sort of industries they encourage and in their attitude toward the private sector. On paper India seems on the whole less willing to entrust investment to private capital and in the planning documents there appear vague pronouncements about how the state reserves the right to enter any industry it sees fit and how the government's share of industrial ownership will gradually increase.[6] But India's practice in industrial ownership is far less threatening to private business than that of Pakistan. As it has been limited to heavy industry India's government investment does not compete with the great majority of private business firms. Pakistan, on the other hand, has expanded the public industry into areas where private business is likely to encounter its competition at every turn. There appears to be more government ownership of industry in Pakistan than in India; the indices (col. 22) are 28 and 22 respectively. Businessmen have reason to fear competition of government firms because of the privileges that these firms may wield through their political association. The plants currently operated by the PIDC if sold to the private sector could form the nucleus of a flourishing competitive market. Whether and how soon these plants will be sold off is yet to be seen.

Thailand is a mixed case. The tobacco industry is maintained for revenue. It was established long ago when other means of obtaining revenue were restricted by international treaty. The item under development corporation (col. 1) is The National Economic Development Corporation Limited (NEDC) which was established in 1954. It owns a variety of plants, including 15 distilleries, sugar mills, a gunny bag factory, a paper mill and a marble factory. Not in NEDC but owned directly by the government are a variety of small enterprises acquired piecemeal over the years: there is a pin and clips factory, an umbrella factory, a basket-weaving factory and a glue factory.

There is some reason to believe that Thailand is moving away from government ownership toward a policy of encouraging private investment, as was recommended by the World Bank. The report of the World Bank mission[7] states that "the government should not only refrain from seeking to increase its industrial participation but should try to disengage itself from its present commitments". It should further develop "basic facilities in transportation, communications and power. If the national resources are used for those purposes which will achieve the greatest benefits, the Government will have little to spare for new industrial ventures of its own." The ground for this opinion was not that government-owned firms would scare away private capital but that the

6. See "Industrial Policy Resolution", *Second Five Year Plan of India, op. cit.*

7. *A Public Development Program for Thailand, Report of a Mission organized by the International Bank for Reconstruction and Development*, Baltimore: The Johns Hopkins Press, 1959, p. 96.

firms are often inefficiently managed and that the limited resources available to the government would be best spent on those items, such as roads and public utilities, that only the government can provide. Recently, Thailand has passed an industrial promotion act giving special privileges to firms entering new types of business.[8]

The two main Burmese government-owned industries shown on the table are the development corporation and the marketing organizations. Actually the largest such industry, the rice marketing board is not in the table at all because the data are not available. The development corporation does business in tobacco, sugar cane, forest products, rubber, coconut, animal husbandry, fisheries, engineering and several other fields.

After the civil war, the present government of the Republic of China (Taiwan) found itself owning a large portion of the island's industry. The proportion between public and private industry has subsequently been reduced somewhat but it is still quite high; the percentage of total production undertaken by public sector companies in manufacturing and mining fell from 54 to 43 per cent and from 27 to 15 per cent respectively between 1952 and 1958.[9]

To the four patterns that emerge from the table, may be added another pattern exemplified by Cambodia. The essence of the Cambodian pattern, which might be called "neutralist", is that (with the exception of a few plants owned by foreigners) large firms are owned by the state while small firms are privately owned. The reason for this is that all of the large firms are gifts from other countries to the Government of Cambodia. The three big factories now in operation, the textile, plywood, and paper plants, are all donations from mainland China. The United States is building a jute mill. Czechoslovakia is in the process of donating a rubber tyre factory, a sugar refinery and a tractor factory and several other factories are to be put up by mainland China. At the same time, the state-run Caisse Nationale d'Equippement is empowered to lend money on what appears to be very generous terms to small firms owned by Cambodian nationals. Among the firms that have received such loans are saw mills, a small textile plant, a tannery and a cigarette factory.[10]

In a sense, this policy is the outcome of a deliberate attempt made in Cambodia to be half-way between the great power blocs both as regards political alliance and in the pattern of its economic and political life. But in another sense, the system is imposed by circumstances. Cambodia is so predominantly a land of small farmers and small traders that industry which is locally financed and operated must be on a modest scale. Foreign aid on the other hand faces

8. The promoted industries are (a) guaranteed that the state will not expropriate them or set up industries in competition with them, (b) granted a reduction of or exemption from certain custom duties and income taxes, and (c) given some protection in the form of tariffs on the import into Thailand of competing products. See *Brief Information Concerning Investment in Thailand*, Board of Investment, Bangkok, 1959.

9. Ronald H. C. Ho, "Management of Public Industrial and Mining Enterprises in the Republic of China", a paper prepared for the *Seminar on Management of Public Industrial Enterprises* sponsored jointly by the Government of India and the United Nations, New Delhi, December 1959.

10. Loans of up to 4 million riels (about US$60 thousand at the unofficial, Bangkok or Hong Kong, rate of exchange) are granted at interest rates of 3% to 4% per annum, which take effect only 4 years after the granting of the loans.

TABLE. GOVERNMENT OWNERSHIP OF INDUSTRY

Country	Percentage distribution of government industrial assets																Computation of index of government ownership				
	Development corporation	Shipping & shipbuilding	Steel	Engineering, machine tools & instruments	Minerals & mining (incl. salt but not petroleum)	Electrical	Chemicals & pharmaceuticals	Petroleum products	Wood & paper	Gunny bags, textiles & leather	Cement & building products	Fertilizer	Tobacco	Sugar	Processing & marketing of agricultural products not incl. in cols. (10), (11) and (14)	Other	Total government ownership of industry	Correction factor	Imputed net worth cols. (17) x (18)	Net domestic product originating in mining, manufacturing & construction	Index of government ownership col. (19) x 100 / col. (20)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Burma	54	3			2		5								36		277	1.5	416	975	42
Ceylon					10		7		11	18	29			10	9	6	226	1	226	848	27
Republic of China (Taiwan)		1		4	7		3	11		2		8		63	n	2	4,534	1	4,534	11,040	41
Hong Kong																	0		0		0
India	n	6	64	5	10	5	1	2	1			6			n	n	4,712	1	4,712	21,400	22
Japan													100				272,000	1.5	408,000	3,452,000	12
Malaya																	0		0		0
Pakistan	86							14								n	805	1	805	2,884	28
		16		13	2		2	1	21	13	4	6		8							
Philippines		12									27		52		8	2	128	1	128	2,140	6
Singapore																	0		0		0
Thailand	25			n	1		1		12	5	3		39	3	9	2	3,010	0.5	1,505	8,200	19

Notes and sources:

(a) The dates of the statistics in columns (1) to (17) are given in notes below. The dates in column (20) are adjusted as closely as possible.

(b) Burma: current expenditures of boards and corporations for the fiscal year 1959-1960. *Budget Estimates of the Government of the Union of Burma, 1959-1960*, Book III, p. 2.

(c) Ceylon: authorized capital of government-owned corporations as of September 30, 1959. *Accounts of the Government of Ceylon for the Financial Year 1958-1959*, Part I, p. 133.

(d) Republic of China: total net worth of directly invested enterprises and indirectly invested enterprises as of December 31, 1959. *Statistical Abstract of the Republic of China, 1960*, p. 485 and p. 490.

(e) India: government contribution to assets to March 31, 1960. *Explanatory Memorandum on the Budget of the Central Government for 1960-1961*, p. 165.

(f) Japan: current receipts in 1959 final year. *Japan Statistical Yearbook 1959*.

(g) Pakistan: government contribution to assets on various dates in 1959 and 1960. *The Budget of the Government of Pakistan for the Financial Year ending March 31, 1961. Explanatory Memorandum*, pp. 145-167. Figures in small print are industrial composition of PIDC stated in column (1).

(h) Philippines: net worth of government owned enterprises as of June 30, 1960. See *Budget for the Fiscal Year 1961*, p. 94C.

(i) Thailand: total assets of government enterprises at the end of the fiscal year 1958. *Budget Summary FY 1960*, Budget Bureau, Office of the Prime Minister, p. 26.

(j) "n" means negligible, less than half of one per cent.

(k) Data in columns (17), (19) and (20) are given in million units of local currency.

no such restrictions; and its aims are normally best achieved by big projects that capture the eye and the imagination.

This leads to a general proposition which is true to a greater or less extent in all the countries examined in the table. It is that the choice between public and private industry rests as much on specific circumstances of time and place as on a conscious choice among political systems. To approach this from a slightly different point of view, we may distinguish three related aspects of socialism, government regulation of economic life, the welfare state and public ownership of the means of production. Our point is that the last of these is determined largely by considerations extraneous to preferences for socialism or capitalism as such. The monopoly corporations of Japan and Thailand are cases in point. Even in India, which is often referred to as leaning toward socialism, the government-owned plants tend to be concentrated in heavy industries where, so it is argued, returns are not immediate and private capital is unwilling to enter in "sufficient" amounts. Pakistan is reputed to be more capitalistically oriented than India, but the index of government ownership of industry is actually higher for Pakistan than it is for India because of the privately-owned industrial base that existed within the boundaries of present-day India at the time of partition and because of the supposed concentration of entrepreneurial talent in the public sector of Pakistan. A strong case could be made that the absence of government-owned industry in Hong Kong and Singapore stems from their situation as city states. This general point about the unimportance of ideology must not be pushed too far especially as regards India, but there is often a variety of special circumstances that are in many cases predominant.

BOOK REVIEWS

E. Stuart Kirby (editor), *Contemporary China: Economic and Social Studies, Documents, Chronology, Bibliography*, Hong Kong University Press, Volume II (1956-57), July 1958, 352 pp.; Volume III (1958-59), September 1960, 439 pp.

Once again, Professor Kirby and his colleagues in the University of Hong Kong must be congratulated for producing this series on China. The second and third volumes of this journal are attractive as well as full of useful information. Particularly useful are sections III and IV which provide respectively a chronology of economic and social events and a current bibliography. They should certainly fulfil the aim of the editors to make the journal the "source-book for research and general reference". The chronology is very well arranged and provides the reliable time-framework essential before any analytical work can be done. And the Current or Selected biliography is as comprehensive as one could wish for the publications of Mainland China, Hong Kong and Taiwan. It is hoped that this effort will inspire a bibliography of publications about China published outside the three territories. A great deal has been and will be written about the astonishing social and economic experiment in China and serious writing is being done in at least the following areas: (1) U.S.S.R. and the East European countries, (2) North America and Western Europe, (3) Asia, especially India and Japan.

There is one point of criticism I should make, however, on the Current bibliography in Volume III. This is not only less selective but also not annotated. While it may be argued that the few notes in the Select bibliography of Volume II were not very helpful anyway, I feel that the decision to abandon notes altogether is a step backwards. Ninety pages of 1,318 titles of books and articles, often of works not easily obtainable, could have been more meaningful if there had been some editorial notes on the major items. There is also one minor point — in Volume III, some of the articles published in Hong Kong journals are mistakenly marked (M) (=Mainland) on pp. 382, 383 and 390.

Section II which consists of selected documents is also valuable for reference. The three documents in each volume have been carefully selected and are obviously some of the most notable of the period covered. They are particularly valuable because the editors have not tried to rearrange or abbreviate them in any way. Generous space has been given to each document. The original text of the Communist Party Constitution and the Draft Regulations of the Weihsin People's Commune is reproduced: the latter is vital for a precise understanding of recent developments.

As for Section I (Papers and Discussions), the material is rather uneven in Volume II where it cannot be compared with the other three sections for reference value. Of the nine papers in this volume, five are rather technical articles on the economy and most of them are efficiently presented. Professor Kirby himself gives us some valuable notes on the economy of Taiwan. But there is little to be learnt from Leon Triviere's short note on birth control and a note of warning

is necessary about the dogmatic views of Vermier Y. Chiu on the marriage laws. Werner Handke's article, however, is very much to the point about the Communist "Law of Proportional Development". Unfortunately, it is far too brief and the author sounds as if he were tired of an old argument. It would be interesting to see a fuller study on this subject.

This criticism of uneven material cannot be made of the papers in Volume III. Section I of this volume begins with another re-statement by the always brilliant and always controversial Karl Wittfogel about Oriental Despotism. How elusive this subject really is can be deduced by Professor Wittfogel's final quotation from the classical economist, Richard Jones, that "despotism itself has its varieties". This is followed by an able survey of China's population problems by S. Chandrasekhar — a monograph on the census of 1953. After this are two probing essays on the Chinese economy by Wu Yuan-li and Ronald Hsia, the latter's article including some imposing statistics of industrial output which deserve close study.

The longest article is that by E. F. Szczepanik on China's foreign trade. This is an illuminating study which shows clearly how unstable a country's foreign trade can be when it is wholly determined by the state and by political issues. Also important is the evidence the author presents to show how the trade with Southeast Asia and Hong Kong provides the surpluses to pay for the deficit in the trade with the western nations. It is interesting to see the role Malaya and Singapore have played in the Chinese economy throughout the period 1953-1958.

There follow three articles on the most important event of 1958 — the establishment of the people's communes. Written so soon after the event, it is not surprising that the authors were content to be brief. Chao Kuo-chun, however, describes the nature of the communes ably and risks a note of optimism about their function. Rebecca S. Kwan is frankly sceptical about the benefits of these communes for the emancipated woman. And finally, Professor Kirby comes out openly with an estimate of the place of the communes in Communist psychology and suggests that it is part of the "ideology of the Great Leap". "This," he adds, "it must seem, bodes ill for the internal or external stability of Communist China, and for world peace. In this mood, further Great Leaps (inside or outside the existing framework and the present borders) will *inevitably succeed each other*, and the prospects of coexistence are problematical."[1] Professor Kirby is probably deliberately provocative. Events since 1959 do not seem to justify such a strong statement. Nevertheless, Professor Kirby has made an acute assessment of the commune, especially by placing it in the perspective of the Russian experiments of the 1920's.

T. J. Lindsay continues his study of water conservancy and hydro-electric schemes which he began so ably in Volume II of this journal. In this second part, he examines the more noteworthy features of the Second Five-Year Plan and provides three tables and two maps to show the realistic way the Chinese are tackling this problem. The final article by J. C. Cheng gives a short history of the growth of the school system in China. Its last table, Table E, gives some interesting figures about primary, secondary and higher education in the period 1942-1959.

1. Reviewer's italics.

These two volumes on Contemporary China are invaluable to the serious student. I am happy to know that there will be many more to come. In the introduction to Volume III, Professor Kirby hints at the possibility of producing four annual volumes in the near future. This is truly a welcome move, especially if this would mean an annotated bibliography in addition to book-reviewing. But there is one final point I would like to make. The last two volumes have been produced without haste. This has been a great advantage and has given the journal that quality which is rarely found in journals dealing with contemporary subjects. May the editors continue to keep to the high standards they have achieved.

WANG GUNGWU

Manilal B. Nanawati and J. J. Anjaria, *The Indian Rural Problem*, Bombay: The Indian Society of Agricultural Economics, 1960, 5th ed., pp. 612. M$ 6.00.

This is a thought-provoking book which encompasses a multitude of the problems of rural India in a coordinated fashion. Unlike many others, the authors have had the benefit of wide experience in dealing with such problems on the farm, in the University and at the national policy level. They carefully observe, postulate and analyse the problems in their historical as well as subject matter contexts.

The book was first published in India in 1944. The tremendous economic and political changes in the country which have greatly affected the living conditions of the rural masses since then have been taken into consideration in rewriting this fifth edition. The basic theme of the authors can be found in the following statement: "The rural problem in a country like India with its long traditions and complex social structure goes to the very root of community life in the villages, and it is only through a broad sociological approach in terms of economic incentives, administrative organization and social improvement that a solution can be found." (p. 527). The authors maintain that all the problems merge into a single problem of raising the standard of living of the rural masses who constitute about eighty-three per cent of the total population of India (Census of India, 1951).

The book has been divided into three parts. Part I, "The Facts", provides a factual description of the environment and the resource base of India in terms of population, agriculture, food supply and nutrition, and social services. The discussion primarily centres around the agricultural sector since agriculture remains the mainstay of seven out of ten of the population. The contents of this first section could be condensed without detracting from the book.

Part II is an analytical description of various reform policies and measures and of institutions responsible for such measures. The concluding remarks at the end of some of the chapters will be very helpful to those who do not wish to read the chapters through. Although the land tenure system has been much simplified and improved through the land reform legislation of the fifties, the authors still remark that "the broader objective of evolving a simplified system of land tenure and assessment which will stimulate capital formation and improve agricultural efficiency is yet to be attained". (p. 274).

Part III, "Constructive Rural Sociology Towards a Planned Economy", provides numerous insights into policy implications of a planned economic

development. The state has been charged with the larger responsibility of stimulating economic growth. However, referring to the Community Development Movement, the authors say that it has not aroused, even after seven years, sufficient popular enthusiasm and initiative, and its achievements in the field of development are limited. The authors recognize that "a change in the occupational pattern away from agriculture and in favour of industry, trade and auxiliary services" is necessary for economic development. They also note that large increases in output and investment in non-agricultural sectors are necessary to increase the aggregate output and employment, since the process of agricultural development is complementary to the process of industrial development.

This book is not only an excellent text book for teachers and students interested in Indian Rural Economics, but it provides useful analyses on planned economic development which will be helpful to policy makers who face similar problems in other parts of the world.

M. C. Agarwal

Nicholas Kaldor, *Suggestions for a Comprehensive Reform of Direct Taxation*, Colombo: Ceylon Government Publications Bureau, 1960, 21 pp. Rs. –/80.

This small booklet is by no means a tax reform primer. Rather it is "a bare outline of the suggested reforms". It is written for those already familiar with both present taxation practices and with the various viewpoints on taxation reform. The booklet does not pause to support or justify but simply outlines the author's suggestions.

The author's basic suggestion is that there should be four different taxes levied on individuals, assessed from the information filed in one tax return. The four taxes are an income tax, a wealth tax, an expenditure tax, and a gift tax. Although the author speaks of five taxes, the capital gains tax is simply the inclusion of capital gains in ordinary income subject to the income tax.

The gift tax is to be progressive. For each gift the tax payable is the incremental tax based on total gifts to date taxed at the progressive rates. By a neat arrangement of suggested rates and definition of dutiable estate, there is no tax advantage to paying gift tax on gifts *inter vivos* rather than estate duty on a larger estate.

The expenditure tax is a progressive tax on personal expenditures. The suggested rates are really only operative beyond the point at which the income tax ceases to be progressive. An expenditure tax rising to 300 per cent should certainly provide an incentive to save. Those interested in this particular type of tax will no doubt wish to refer to earlier studies by the same author.[1]

To tax amounts spent through an expenditure tax and amounts saved through a wealth tax is to get the taxpayer both coming and going. With wealth tax rates rising to a maximum of two per cent on net assets at current value, the incentive is clearly to save. For administrative convenience the wealth tax exemptions are sufficiently high to exempt a large proportion of the

1. Nicholas Kaldor, *An Expenditure Tax*, London: Allen and Unwin, 1955.

taxpayers from this tax. By using the taxpayers' wealth evaluation of assets as the basis for capital gains calculation, and by providing penalties for undervaluation, it is hoped to minimize avoidance.

In the area of income tax, there are a number of interesting proposals, including taxing capital gains as ordinary income, lowering the maximum rate of taxation to 45 per cent, and aggregating the incomes and exemptions of a family unit.

Companies are only subject to the income tax. There is suggested a complete disallowance of entertainment, executive travel expenses and expense allowances, and fifty per cent of advertising expenses. Capital cost allowance is to be a single allowance equal to "the discounted present value of the depreciation allowances now granted over the lifetime of the capital asset". If capital cost allowance were presently twenty per cent on a diminishing balance, the single allowance would be approximately eighty per cent using a five per cent discount factor. Unused allowance may be adjusted upward by an interest factor and claimed in the future. A significant departure from the English pattern is the suggestion that company income tax no longer be grossed into dividends received by shareholders and claimed as tax paid on their behalf by the company. Instead the income tax is to be borne by the company, and in addition tax withholdings be made from dividends paid.

Administrative suggestions include a code number for each taxpayer, one all inclusive tax return, and comprehensive reporting of capital transactions.

It should be borne in mind while reading the suggestions that the stated objective is "a system of progressive direct taxation suited to the needs of a democratic socialist community". The suggestions are not new, since they have often been made by the author in his writings on Indian tax reform.[2] This booklet, nevertheless, is particularly interesting, not so much for its suggestions on taxation reform in Ceylon, but as a succinct presentation of the author's consistently expounded tax reform measures appropriate to underdeveloped socialist states. For those already interested in the area of taxation reform, the booklet provides a concise summary of the author's controversial ideas. For those who have not yet explored this interesting area, this reviewer can suggest no better appetizer.

DANIEL MCDONALD

2. Nicholas Kaldor, *Indian Tax Reform*, Department of Economic Affairs, Ministry of Finance, Government of India, 1956.

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